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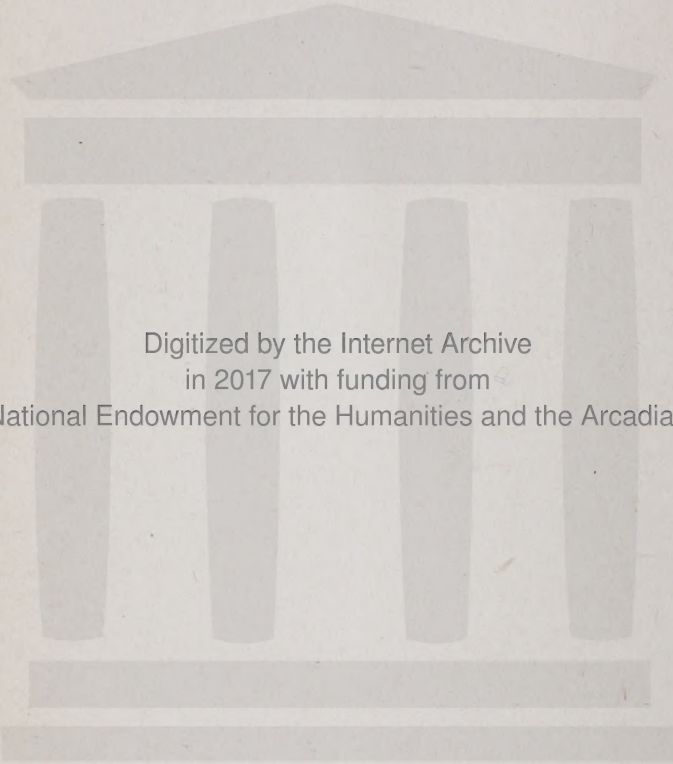












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MEDICAL ANNALS

INTUSSUSCEPTION.—REPORT OF A CASE REDUCED  
BY OPERATION.\*

By GEORGE TULLY VAUGHAN, M. D.,

Assistant Surgeon General U. S. Public Health and Marine Hospital Service.

In his study of 1,000 operations for acute intestinal obstruction, Gibson found that intussusception caused the obstruction in 187 cases, thus holding the second place in point of frequency in the etiology of this condition, hernia coming first, with 354 cases.

*Varieties.*—Four varieties of intussusception are given, in order of frequency as follows: 1, *Ileo-caecal*, in which the ileum with the caecum slips into the colon, the ileum continuing to push the ileo-caecal valve in front of it and to invaginate the colon; 2, *Enteric*, in which the small intestine telescopes itself; 3, *Colic or colico-rectal*, in which the colon telescopes itself or the rectum; 4, *Ileo-colic*, in which the ileum slips through the ileo-caecal valve, the caecum and colon maintaining their normal position. According to Wiggin, 89 per cent. belong to the ileo-caecal variety. According to the degree of obstruction or strangulation of the bowel, intussusception may be acute or chronic. The *acute* form, like strangulated hernia, may produce death in twenty-four hours or the patient may survive two or three weeks, while the *chronic* form may last indefinitely, with symptoms of stricture rather than strangulation of the bowel.

*Etiology.*—It is estimated that more than half the cases occur in children under ten years of age, and more than one-third of all cases occur in infants under one year of age. Wiggin found it three times as frequent in males as in females. Whatever produces violent and irregular peristalsis, as indigestion or traumatism, may cause the condition. The circular muscular fibers contract and diminish the size of a segment of bowel while the longitudinal fibers contract and

\* Read before the Medical Society of the District of Columbia, January 21, 1903.



pull the segment of larger caliber up over the contracted portion and thus the telescoping begins. The inside tube, doubled on itself with its peritoneal layers approximated, constitutes the *intussusceptum*, while the outside tube of a single layer is the *intussusciens*, or receiving part, and has its mucous coat in contact with the outside mucous coat of the *intussusceptum*. The *intussusceptum* varies in length from an inch or two to two or three yards, and the apex of the *intussusceptum* may be felt in the rectum or it may protrude through the anus. Traction and compression of the bloodvessels in the mesentery soon disturb the circulation and lead to inflammation and perhaps gangrene, sometimes with sloughing of the entire *intussusceptum* and a spontaneous cure. Occasionally the invagination is *compound*, the entire intussusception telescoping the bowel below, taking on two or more coats and giving it five layers, and it is said that even a third invagination of the same portion may occur, giving the intussusception seven layers.

*Diagnosis.*—The diagnosis is made by the age of the patient, the sudden occurrence of colicky pain, followed by vomiting, constipation, and, if the colon or rectum be involved, by the passage of blood and mucus, accompanied by tenesmus. A tumor can be detected in more than half the cases, either in the rectum or may be felt through the abdominal walls, of an elongated, cylindrical or sausage shape, more frequently on the right side. Hernia, volvulus, faecal impaction and intestinal obstruction from other causes must be excluded.

*Treatment.*—The rational, sensible and life-saving method of treatment is laparotomy as early as possible within the first twenty-four hours. The same necessity for prompt operation exists as in strangulated hernia. Hydrostatic pressure with the child inverted may be tried during the first few, say twelve hours, but the method failed in three-fourths of the cases reported by Wiggin; besides, there is danger of rupture of the intestine if too great force is used, and the beneficent results of a timely laparotomy should not be jeopardized by too long delay in the practice of uncertain and exhausting methods. Without operation the mortality is from 60 to 90 per cent.; with operation, according to Wiggin, only 32 per cent., and I am satisfied that if all cases were operated on within the first twelve hours, the mortality would be less than 5 per cent. The importance of early operation is well shown in Gibson's list of 187 operations for



intussusception in which the mortality was 37 per cent. when performed on the first day, 39 per cent. on the second day, 61 per cent. on the third day, 67 per cent. on the fourth day, 73 per cent. on the fifth day and 75 per cent. on the sixth day.

In the same way the difficulty of reducing the invagination increases with the lapse of time, 94 per cent. being reducible on the first day, 83 per cent. on the second day, 61 per cent. on the third day and 40 per cent. on the fourth day. The abdomen should be opened over the tumor, usually through the right rectus muscle, and the intussusception reduced by gentle traction on the intussusciens. Should this be impossible, and the parts of good vitality, they may be reduced after exposing the intussusceptum by a slit in the intussusciens or the intussusceptum may be amputated after clamping it with forceps. The two coats are then sewed together and the incision in the intussusciens closed; or the invagination may be sidetracked by a lateral anastomosis between the intestine above and below; or it may be literally cut out of the circuit, its two ends closed with sutures and left in the abdomen, while the circuit is restored by anastomosis between the remaining two ends of the intestine. If gangrenous, the entire mass should be removed and an anastomosis or artificial anus formed, preferably the former. In gangrenous cases the mortality is very high with any method of treatment—about 80 per cent. in Gibson's 56 cases, but without operation it must be remembered that such cases are doomed to inevitable death.

*Case:* C. R., white, male, age 5 years; was taken ill June 19, 1902, with cramps in the bowels, thought to be the result of eating pineapples. There were vomiting and bloody stools, but no tenesmus. I first saw him, with Dr. A. Behrend, June 25, six days after the attack began. At the time, he was lying on his back with knees drawn up, inclined to sleep (probably the effects of the laudanum he had taken), and very irritable on being aroused. Examination of the abdomen failed to detect a tumor, but it seemed to be more sensitive on the right side. The temperature and pulse were slightly above the normal. Intussusception, appendicitis and colitis were considered, and in the absence of a tumor or constipation and in the presence of bloody stools, I was inclined to the diagnosis of colitis and advised against operation unless something more definite should develop. Three days later, June 28, I was again called in by Dr. Behrend, the patient

having grown worse. Examination of the abdomen now revealed an elastic, oblong tumor to the right of the navel, also tenderness and some rigidity of the right rectus muscle. Nothing could be detected by rectal exploration. Invagination was diagnosed and immediate operation advised, but some doubt was still felt, owing to the perviousness of the alimentary canal as shown by the use of bismuth.

The patient was removed to Georgetown University Hospital and operated on at 8.30 P. M. On opening the abdomen through the right rectus muscle over the tumor and turning the great omentum to the left, the tumor was seen to consist of the dark-colored distended ascending and part of the transverse colon, within which the caecum, appendix and part of the ileum had disappeared. Firm traction on the ileum (the intussusceptum) failed to reduce the invagination, but this was accomplished with great facility by traction on the colon (the intussusciens). The intussusception belonged to the ileo-caecal variety, was about 3 inches long and contained 6 to 8 inches of intestine. There were no adhesions. The abdomen was closed without drainage, with through-and-through silkworm gut sutures and catgut for the peritoneum and sheath of the rectus. Recovery was uncomplicated. The stitches were removed July 9, the eleventh day, and the patient discharged, July 13 recovered.

#### DISCUSSION.

**Dr. Behrend** said that when he first saw the child it had colicky pains and vomiting. The mother had given it Squibb's mixture. That evening the temperature was 101.4, and he thought the case one of acute indigestion. The symptoms continued however, and on the third day blood appeared in the passages. He consulted his son, and later, Dr. Vaughan. No tumor could be discovered. It was remarkable that the boy was relieved for two or three days by the manipulation incident to the examination of his abdomen. Calomel and hyoscyamus were administered. The symptoms returned, and a tumor was discovered. The operation was successful. It was true that some time was lost before operation was decided on, but in the meantime he was enabled to make a positive diagnosis.

**Dr. J. Ford Thompson** referred to an unusual case of intussusception which he had reported to the Society last winter. The bowel protruded 6 or 8 inches from the anus, and on this account the child had been treated for prolapse. He made a diagnosis of intussusception. On cutting into the mass he detected the



appendix, which lay in the sac, and excised it. He cut off almost all the gut that protruded, and sewed the two tubes end-to-end, uniting the ileum to the colon, and the bowel slipped back into the abdomen without assistance. The child was well at the present time. He was unable to find a similar case in literature. He had several times felt the ileo-caecal variety from the rectum.

The early diagnosis and treatment were of the greatest importance. Operation, if performed early, was simple and gave good results, particularly if there were few or no adhesions. If performed within the first few hours there would be 80 or 90 per cent. of recoveries; as it was, however, the mortality was very large. The main point was to reduce manually by traction on the intussusciptions. Bloody diarrhoea was characteristic of intussusception, particularly of the ileo-colic variety.

**Dr. Fry** related the case of a child 8 months old, which had an evacuation by straining one morning, and had also pain, though not very severe. The child was not very sick, vomiting was not a feature, but there was obstinate constipation. Not until the third day did its condition demand operation. Intussusception was suspected, and an operation was performed by Dr. Kerr. When the ether was given the child had a movement of the bowels. The diagnosis was found correct, the intussusception was manually reduced and the child recovered. The symptoms of intussusception were sometimes so vague that it was impossible to make a diagnosis and operate within 24 or even 48 hours.

**Dr. Neff** said that it might be interesting to state in this connection that the operation for intussusception was one of the oldest in surgery. The first operation of which there is any record was performed on the island of Cos by Praxagoras, 350 years before Christ.

The attention of the medical world had recently been attracted to this island, owing to the discovery of the ruins of the temple of Aesculapius.

**Dr. D. S. Lamb** said that it was very common to find at post mortem examinations, intussusceptions which had given no noticeable symptoms during life. They were generally attributed to spasm during the last agony, and were evidently of recent origin because there were no signs of irritation or inflammation. This raised the question as to how frequently intussusception appeared and disappeared without recognition or serious results. Undoubtedly, the intestine had the power to right itself. In his experience, such intussusceptions were always seen in the ileum, and rarely except in adults.

**Dr. Balloch** congratulated Dr. Vaughan on the favorable result of the operation, but asked what guarantee there was that the condition would not return. He thought it advisable, if possible, to do also a colopexy in these cases, uniting the intestine to the abdominal wall to prevent recurrence of the intussusception.

**Dr. Abbe** said that he had seen five cases at the hospital, four of the patients being under two years of age. One case was interesting in connection with what Dr. Balloch had said. The child did well until the third day after operation, when the pulse went up, and there were colicky pains; these symptoms were relieved by a high enema. The question of recurrence was raised, but there was no positive proof that the surmise was correct. It was customary at the operation to speak of reducing the intussusception by expression of the mass, rather than by traction.

**Dr. I. S. Stone** said that it would be interesting to know what caused intussusception. Some would remember physiological experiments on animals that showed that irritation of the mesentery by sodium bicarbonate, etc., was able to produce intussusception in a few minutes. It had occurred to him that the use of salt solution in the peritoneal cavity during operations might also cause trouble in this way. Perhaps the irritation in some cases was due to the presence of ptomaines, a ptomaine poisoning. He also had noted the occurrence of intussusception in autopsy subjects, particularly in starved cancer cases.

He related a case of intussusception which he had seen in the country. The trouble had existed several months and it looked as if it had become more or less permanent. The obstruction was due to the collection of food at the point involved. The patient was relieved by operation, and was still living.

**Dr. A. F. A. King** said that with reference to the etiology it was interesting to recall an explanation offered when intussusception was discussed by this Society thirty or thirty-five years ago. Dr. Liebermann, a former president of the Society, suggested that it was due to increased peristaltic action caused by irritation of the intestine by the increased and violent activity of lumbricoid worms, brought about by the administration of powerful anthelmintics.

**Dr. Behrend**, with reference to the post mortem cases, suggested that the intussusception might be due to the fact that the children first had colic, and then became cold and clammy; the relaxed condition of the bowels predisposed to invagination.

**Dr. S. S. Adams** spoke with reference to diagnosis in infantile cases. He believed that in Dr. Vaughan's case the intussusception came on just before the second visit; it frequently followed colitis. He had seen several cases in which there was a bloody discharge. In Dr. Fry's case, the child strained down every few minutes. In one infant, 14 months old, intussusception came on at stool, caused by straining. He felt the mass in the rectum the same evening. It was reduced by a saline injection. A month later it recurred, but since then there had been no trouble.

As to the occurrence of intussusception in children post mortem: In children suffering from mal-nutrition the tendency to invagination of the intestine was very great, and in cases presenting no



symptoms of intussusception during life the lesion would probably be of post mortem origin. Had the intussusception existed at the time of Dr. Vaughan's first visit adhesions would in all probability have been found at the operation. In view of his own experience, when he saw a child with constant or frequently repeated bearing-down colicky pains and cold, clammy sweat, and no relief obtained from injections, he advised operation in twenty-four hours.

**Dr. Vaughan**, in closing, said that the best way to reduce intussusception was by expression, or traction on the intussusciptens; he tried the other method in the case reported, and was convinced that it was not so good. As to Dr. Balloch's suggestion that the intestine be stitched to the abdominal wall to prevent recurrence, it was customary to do this in volvulus when the mesentery was unusually long; but he had never read of a case where the intussusception had occurred a second time in the same place in the intestine. Hence he thought the stitching unnecessary in ordinary cases.

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## CASE OF HYSTERECTOMY FOR FIBROIDS.\*

By D. PERCY HICKLING, M. D.,

Washington, D. C.

E. O., a colored woman, 39 years old, widow, domestic, was admitted into the Washington Asylum Hospital December 8, 1902, with the following history: Family history negative. She had typhoid fever many years ago. About sixteen years ago she was delivered of a dead baby at term, the cause of the stillbirth being unknown. She has had a tumor in her abdomen for fourteen or fifteen years, growing larger each year, and she states that she has been getting weaker and losing weight each year, especially during the last few years. She has had menorrhagia and dysmenorrhoea since the tumor has been so large. About October 20 she had an attack of lobar pneumonia.

When admitted her general condition was poor. She had pain in her chest and abdomen, the abdominal pain increasing on pressure; she had had several attacks of vomiting of partly digested food and her appetite was poor; some constipation. Pulse 126, temperature 101.4, respiration 36; the action of the heart was rapid and weak, but there was no organic lesion. Some dyspnoea;

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\* Reported with specimen to the Medical Society of the District of Columbia, January 14, 1903.

mucous rales were heard over both lungs; there was some cough and a muco-purulent expectoration, which was, however, free from tubercle bacilli. The liver was displaced upward, the spleen apparently normal; abdomen large and distended, with thin abdominal walls, so that a large, solid nodular tumor could be easily palpated; the urinary analysis showed nothing pathological except a small percentage of albumen, which was probably due to pressure. She was placed on full doses of strychnia and given a liberal diet and an expectorant mixture. Her condition rapidly improved, so that on December 20 I removed these growths, the smaller one being apparently detached and was found low down in the pelvis. There was a small haematoma in the left broad ligament. The operation was uneventful; it lasted about an hour, chloroform being the anesthetic for the first half of the operation and ether during the second half. The patient made an ideal recovery, so that at the present time she has gained considerably in weight, is entirely free from cough, has no pain, has a good appetite, says she is well and wants to get up.

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## CASE OF CANCER OF THE MALE BREAST; EXCISION.\*

By EDWARD A. BALLOCH, A. M., M. D.,

Washington, D. C.

H. M., colored, age 66, farmer, was admitted to Freedmen's Hospital, October 13, 1902. His family and past history have no bearing on the present condition.

He states that three years ago his right arm became painful, and soon thereafter his right breast began to enlarge and has steadily increased in size. At first there was a milky discharge from the breast, but this did not last long. No history of trauma could be elicited. There has been occasional lancinating pain, and the breast has been painful when handled, especially in the region of the nipple.

He is a man in vigorous health, all the vital organs normal. In the right mamma was a spherical, easily-defined growth, 7 cm. in diameter. Two-thirds of the mass was hard and unyielding, but

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\*Reported with specimen to the Medical Society of the District of Columbia, January 21, 1903.



in the outer portion was a softened area, 3 cm. in diameter, containing fluid and suggesting a cyst. The nipple was retracted and painful to pressure. The mass moved freely on the pectoral muscles. Axillary glands not palpable, owing to excess of fat.

Taking into consideration the rapidity of the growth, the absence of demonstrable enlargement of the axillary glands and the presence of the soft area, the diagnosis of sarcoma was made.

The growth was removed, October 17, by the Halsted-Meyer operation, and he made a perfect recovery. Up to the present there have been no signs of recurrence, either locally or in the viscera.

The growth was a soft, greyish encapsulated mass. The soft area contained dark, fluid blood and some clots, as if a vessel had been opened by the extension of the growth and had caused hemorrhage. The axillary glands were not enlarged, but were distinctly hard.

Microscopically, the growth was found, by Dr. Neil D. Graham, to be a carcinoma.

The proportion of cancerous growths in the male breast to similar growths in the female breast is usually given as 1 to 100, but I am of the opinion that if all growths of this character were reported the ratio would be somewhat larger. The latest statistics on the subject are those of Warfield (Bulletin Johns Hopkins Hospital, Vol. XII, No. 127), and to this compilation anyone interested is referred.

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## CASES OF MYOMECTOMY AND HYSTEROMYOMECTOMY DURING PREGNANCY.\*

By W. SINCLAIR BOWEN, M. D.,

Washington, D. C.

Case 1. Myomectomy at the end of the third month of pregnancy:—Three subperitoneal fibroids, varying in size from an orange to a hickory nut, removed by laparotomy. The pregnancy progressed to full term and ended in normal delivery.

Case 2. Hysteromyomectomy at the end of the fifth month of pregnancy, performed during labor. One fibroid projected up

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\*Reported with specimens to the Medical Society of the District of Columbia, January 14, 1903.

under the ribs of the right side, and one filled up the pelvis, the uterus being between the two. Dr. Bowen had hoped to operate later in pregnancy, but labor coming on required immediate operation. Recovery.

**Dr. I. S. Stone** said that the cases were very important and the operations were brilliantly and successfully performed in spite of the attendant difficulties, and deserved more time and emphasis than Dr. Bowen had accorded them in his presentation. He had spoken as though the cases were nothing out of the ordinary, and had said comparatively little about them, but he deserved great credit for his successful treatment of these two very difficult cases.

**Dr. Fry** said that the subject of the treatment of pregnancy complicated with fibroids was well worthy of discussion. Attempts were formerly made to end the pregnancy by the use of sounds, etc., but the practice was found both difficult and dangerous, and was now obsolete, and the treatment at the present time consisted in the performance of hysterectomy or myomectomy. If the tumor did not lie in the pelvic cavity, pregnancy might be allowed to go on; and even if it did lie there, one should not be in a hurry to operate, because the tumor was often carried up out of the pelvis as the gravid uterus enlarged. He cited cases seen with Drs. J. Taber Johnson, Stavely and others, in which this had occurred, and the patients had normal deliveries at full term. Operation should therefore be delayed as long as possible. He had operated in two cases, at the fourth and fifth months respectively, but interference was absolutely necessary. In regard to the mortality from these operations, six had been performed in this District, and all the patients recovered.

**Dr. Stavely** referred to the case mentioned by Dr. Fry and seen with him in consultation. He had first seen the patient with Dr. Heiberger, and they decided that natural delivery was impossible, but that it was best to wait operation until the woman came to term. The patient, however, at first objected to waiting, and Dr. Stavely attempted to bring on labor with a catheter but failed. No further attempt to interfere was made, and the woman was delivered normally at full term by Dr. Heiberger. When fibroids involved the cervix uteri, operation was often indicated.

**Dr. A. F. A. King** asked Dr. Stavely what he meant by saying that the induction of labor by the use of a catheter was an obsolete method.

**Dr. Stavely** replied that he meant it only in this connection.

**Dr. Fry** expressed the opinion that the method was obsolete, or rapidly becoming so.

**Dr. Heiberger** said that in the case referred to by Dr. Stavely the labor was normal; it lasted a little over eight hours.



**Dr. D. S. Lamb** said that he had enlarged the incision in Dr. Bowen's second case, and found the placenta firmly implanted directly over the site occupied by the fibroid. Would this connection add to the gravity of the case?

**Dr. Bowen** replied in the affirmative. The greatest danger was that from hemorrhage due to non-contraction of the uterine sinuses, owing to the dense structure of the growth.

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## CASE OF FIBROMATA OF THE SCROTUM; EXCISION.\*

By EDWARD A. BALLOCH, A. M., M. D.,

Washington, D. C.

C. D., colored, age 16, was admitted to Freedmen's Hospital, December 15, 1902. His father was living and in good health; mother died eleven years ago; cause of death unknown; eleven brothers and seven sisters living and well; two sisters dead from unknown causes. The patient does not recollect having had any of the usual diseases of childhood, but states that years ago he had an abscess in the right groin, and a yellow discharge from the penis. He afterward denied this, and as no scar could be detected I am not disposed to attach much credit to this part of the history.

Eight years ago a tumor was noticed in the upper part of the right side of the scrotum and had continued to grow ever since. It gave pain only when he attempted to lift something heavy; aside from this the only trouble was the inconvenience caused by its weight and bulk.

The scrotum was 13 inches in length and 21 in circumference at its largest part. The skin of the right side of the scrotum was shiny from overstretching and was crossed by several veins. The right testicle was felt at a point eight inches below the external ring and the spermatic cord could be traced from it to the ring. The left testicle was four inches below the left external ring. Both testicles and both spermatic cords seemed normal. In the right side of the scrotum, in the cavity of the tunica vaginalis were three growths. One was in the upper part of the scrotum, near the ring, and the other two lay diagonally thence downward

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\* Reported with specimens to the Medical Society of the District of Columbia, January 21, 1903.

and toward the left. All the masses were hard and one, at least, was multi-nodular. The masses were separate. There was no fluid in the scrotum but the tissues had a peculiar gelatinous feel, difficult to describe. There was a keloid growth behind the right ear, at the site of an old cut. All the other organs and viscera were normal.

Operation December 15. The growths were found in the cavity of the tunica vaginalis. The upper tumor extended up into the inguinal canal and was attached high up by a distinct pedicle; the other masses were embedded in the tunica. They were enucleated without difficulty. The tunica vaginalis was thickened and converted into a mass of gelatinous tissue. This was excised in its entirety. In cutting away this loose, gelatinous mass the right spermatic cord was accidentally cut and, together with the testicle, was removed with the tunic. This accident was deplored at the time, but since the report of the pathologist shows that it is the subject of the same peculiar mucoid degeneration as the growths and the tunic, it is just as well that it was removed. The excess of skin in the scrotum was cut away and the longitudinal wound in the scrotum sewed up transversely for the purpose of shortening the scrotum. The wounds healed kindly, and the boy made a rapid recovery and is now ready to leave the hospital.

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## CASE OF CANCER OF THE CAECUM; EXCISION.\*

By EDWARD A. BALLOCH, A. M., M. D.,

Washington, D. C.

Frank W., colored, age 36, laborer, was admitted to Freedmen's Hospital, October 24, 1902. His father died of old age. Mother, three brothers and one sister living and in good health; his own health good until present illness; does not use alcoholic stimulants or tobacco.

His present illness began October 3 with griping pains in the abdomen, increased after eating. The first attack followed a hearty meal of corn and baked beans, which caused constipation for 36 hours. A dose of castor oil was taken and produced a small semi-liquid stool, without relief to the pain and griping.

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\* Reported with specimen to the Medical Society of the District of Columbia, January 21, 1903.



The bowels have not moved since, unless aided by active cathartics.

He is fairly well nourished, conjunctivae yellowish, tongue coated and pointed. Chest well developed and symmetrical and expands well. Percussion: Heart and lungs normal, liver dullness increased downward. Auscultation: Lung and heart sounds normal.

With this history he was sent to the medical ward, under the care of Dr. N. D. Graham. The case seemed at first one of acute indigestion and was treated for two weeks under that impression. As he seemed to get steadily worse, losing flesh and strength daily, Dr. Graham examined him more carefully and thought that he made out a mass in the right lower quadrant of the abdomen. About this time a symptom appeared which threw much light on the case. This consisted in visible waves of peristalsis, which began on the left side and passed across to the right, ending with an audible gurgling. This occurred about every ten minutes and was a source of much distress. During his stay in the medical ward, cathartics were required in order to secure any movement of the bowels and no solid stool was ever passed. After his second examination Dr. Graham became convinced that there was a malignant growth in the neighborhood of the caecum, and asked me to see the patient with a view to having him transferred to the surgical side for operation. When I saw him I was unable to detect the thickening at the head of the colon which Dr. Graham had made out, but the signs of chronic, partial obstruction were clear in the constipation and the peculiar peristaltic movements of the small intestine, which always began and ended at the same places. In view of the apparently acute nature of the trouble, my own opinion was that the constriction was caused by a band. Operation was suggested and accepted by the patient after some days, and the abdomen was opened November 22. As the obstruction was almost certainly near the caecum, the incision was made through the right rectus muscle; the hard mass about the caput coli was readily felt, as well as the enlarged glands in the mesentery, so that the condition was evidently malignant. The ileum was enormously enlarged, at least four inches in diameter, and was at first thought to be the distended bladder, which it very much resembled. After much difficulty, owing to adhesions, the caecum was freed and cut away, together with three

inches of the ileum. The section of the mesentery included all the enlarged glands which could be felt. An end-to-end anastomosis was made with Murphy's button. The operation was long and difficult, and he was put to bed with an unfavorable prognosis as to recovery. But, except a fecal fistula which developed on the eighth day, his recovery was uneventful, his temperature never going above 100. The button passed on the ninth day and the fistula closed spontaneously by the end of the second week.

He steadily gained in flesh and strength and left the hospital January 8, 1903.

It is, of course, too early to determine the ultimate result of the operation, but I feel that if he only gains a few months respite from his disease the operation will have been justified.

The specimen shows very well the cancerous thickening in the walls of the bowel and the hard and enlarged glands in the mesentery.

**Dr. I. S. Stone** asked Dr. Balloch why he had excised the affected portion of the bowel, thus making a completed operation.

**Dr. Balloch** replied that the man had only a short time to live anyway, and he believed that this would give him the best chance.

**Dr. Stone** said that most operators would not have been as bold as Dr. Balloch and would have been satisfied with an anastomosis.

**Dr. Neff** said that he had been present at the operations in Dr. Balloch's first and third cases; all three of them were interesting, particularly the third, fibroma of the scrotum. He had never seen so extensive a condition before, and deemed it an especial privilege that he was able to be present at the operation. He could add nothing to what Dr. Balloch had said.

**Dr. Balloch**, in closing, said that the next time he was called to operate upon a case of cancer of the caecum like the one reported he would be satisfied with a mere anastomosis without attempting to remove the caecum. In this case he had succeeded in getting the caecum perfectly free, and he thought it just as easy and satisfactory to excise the affected portion of the bowel as to do a side-to-side or end-to-side anastomosis. The operation was long and difficult. The patient recovered, however, without incident, and so he had nothing to regret.



PERFORATING ULCER OF FOOT. AMPUTATION  
OF LEG.\*

BY R. F. SILLERS, M. D.,

Washington, D. C.

The specimen consisted of a sagittal section of the right foot and lower part of leg showing two fistulous openings above the outer ankle and one above the inner ; the foot generally swollen, especially above the ankle joint. Much loss of bone ; the metatarsals had nearly, if not completely, disappeared ; astragalus partly destroyed and displaced downward and forward ; calcaneum displaced upward and backward against the tibia ; lower end of tibia partly destroyed.

From a white man, age 53 ; general health good. Two brothers and two sons of a sister had also perforating ulcer of foot ; a history of traumatism in each case. Each worked hard and was almost constantly on his feet ; three carpenters and builders, one plumber and gas fitter. None ever showed signs of any nerve lesion. When the patient was 13 years old a corn or callus appeared on his foot, followed by pain in the foot and ankle, ascribed to rheumatism ; in a few months the foot became swollen and the callus broke down into an ulcer, at first involving only the skin, then the deeper parts, and finally a sinus formed from which portions of bone were discharged at frequent intervals. Under treatment the ulcer healed but in a few months reopened ; the foot became painful and swollen and a new sinus formed with renewed discharge or removal of bone, followed by temporary recovery. These alternations of better and worse continued until 1901, when he hurt his foot getting off a car ; swelling, pain and new sinuses at the side of and above the ankle joint, and the leg was much swollen. November 15, 1902, Dr. James Kerr amputated above the ankle joint. Recovery uneventful.

The disease commences by the formation of hard plantar corns, usually situated over the heads of the metatarsal bones of the great, middle or little toes, although other parts may be the sites of these callosities ; coincidently with the appearance of the corns there is sweating of the feet. Suppuration next occurs, the skin gives way and in the course of some weeks, if the resulting sinus is examined with a probe, bare necrosed bone will be easily de-

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\* Reported with specimen to the Medical Society of the District of Columbia, January 28, 1903.

tected, which sooner or later separates, to be removed either by art or by nature, and a temporary convalescence results. When first seen by the surgeon nothing perhaps is found but the callosity over one of the metatarso-phalangeal joints, having at its center a brownish depressed spot. On closer examination this shows itself to be a perforation, giving vent to a slight discharge. Anaesthesia of the opening and of the surrounding skin will be detected in some cases, intense pain complained of in others. At a later period the tendons become affected, and this, together with the loss of portions of the metatarsal and phalangeal bones, causes the foot and toes to become distorted. The nail becomes yellow and very much thickened and fissured. Epidermal accumulations form on the dorsal as well as the plantar surfaces of the foot, the integument becomes pigmented and there is often an excessive growth of hair. One or both feet may be involved, and, in fact, is nearly all cases where it is observed in one foot it sooner or later attacks the other.

In studying the literature of this strange affection I find only two writers who mention its hereditary nature.'

The prognosis is always bad; the treatment, surgical cleanliness. Nothing else can be done to check the progress of the disease, although the pain, swelling, etc., can be somewhat relieved by massage. Nothing short of amputation is of any value, and this, to be successful, must be done some distance above the site of the diseased structures, as there seems to be a tendency to recur. Conservative operations are of no value; curetting, cauterizing, excision of toes, etc., have often been tried, but owing to the nature of the disease there is recurrence.

Sir Frederick Treves (*Lancet*, 1884) says in reporting a case, that when perforating ulcer of the foot is once established and recognized, it is better to remove at once the whole of the metatarsal bones either by Syme's, Chopart's or Pirogoff's amputation.

I am convinced that the disease is much more frequent than the few reported American cases would lead us to infer. Its true nature not being recognized, it is more often described as an ulcer of the sole of the foot, senile gangrene, or tubercular disease of foot.

The humble and despised little "corn" is not always the innocent object it is supposed to be, and might bear some investigation.

Jos. W. Howe, writing of this disease in 1880, concludes his



article as follows: "I may now briefly recapitulate the distinctive features of perforating ulcer which render it difficult to confound with any other disease, even with that most resembling it, viz: the so-called tubercular disease of the foot: 1st, It commences by corns under the metatarso-phalangeal joint; 2d, Generally in the anterior part of the foot; 3d, Sweating of the foot, sometimes offensive; 4th, No evidence of tubercle; 5th, Moderate swelling; 6th, *The disease, or rather the tendency thereto, is hereditary.*"

M. C. Coombs (*British Medical Journal*, 1897), reports a case in a woman 70 years old. Her father suffered badly, her uncle slightly, from the disease; two sisters, her daughter, one brother and her niece all had the same trouble. He reports having seen twelve cases, but believes the disease is more frequent, and that its real nature is not recognized.

Another peculiar fact is that while the American and English journals report only a limited number of cases, the French journals seem to teem with them, though in nearly all instances it has been associated with tabes dorsalis and sometimes diabetes. Charcot and Féré reported two cases in 1883, and described it under the name of Tabetic foot, a nomenclature followed by Boyer, Joffroy, Chauffard, Longuet, Chipault and Klemm; although Nélaton had reported similar cases in 1852, tracing between locomotor ataxia and perforating ulcer a causal relation, and stating also that it could never occur save with central nerve lesions.

So strong had become this belief that M. A. Clark, surgeon to the Middlesex Hospital, London, reported a case admitted for supposed perforating ulcer, but as no nerve lesions were found it was treated as a soft corn, and left the hospital "cured," only to be readmitted for a recurrence, when its real condition was recognized and amputation performed.

The North London Hospital (1885) reported five cases, all males ranging in age from 24 to 63 years; in none were any nerve lesions found, although they were suspected and assiduously hunted for.

Thomas (*Edinburgh Hospital Reports*, 1896), in reporting four cases, admits the frequent relation between nerve lesions and perforating ulcer, but maintains that in many cases the disease owes its origin entirely to local causes. One distinguished writer is of the opinion that whether there is a nerve lesion or not the ulcer itself is due to purely local causes, just as much as is the pressure sore on the heel in cases of fracture of the femur.

The following have been given as etiologically connected with perforating ulcer: 1st. The central nervous system:—Various paralyses of cerebral origin, general paralysis of the insane, locomotor ataxia, spina bifida, syphilis, tumors within spinal canal, fractures of spine, infantile paralysis, progressive muscular atrophy and congenital club foot.

2d. In the peripheral nerves:—Injuries, including contusion, wounds, pressure; tumors, frost bite or badly fitting shoes; intoxications and infections in alcoholism, diabetes, leprosy, etc.; among these, tabes and alcoholism account for the origin of the majority of the reported cases.

**Dr. D. S. Lamb**, in reporting the case for Dr. Sillers, mentioned, in addition to the authors cited by Dr. Sillers, that Moret and Duplay, Schwimmer, Pitres, Vaillard and others, regarded the disease as a tropho-neurotic inflammation. It occurred oftener in parts subjected to pressure, and was favored by deficient nutrition of the tissues and possibly some disorder of innervation. Of 91 cases collected by Gasguel, in 1890, there were central lesions in 69 and peripheral in 8. Histological examination showed destruction of the myelin and axis-cylinder of twigs of nerves supplying the affected parts.

**Dr. McLaughlin** said that perforating ulcer of the foot was of tropho-neurotic origin. It usually was associated with locomotor ataxia, syphilis, diabetes or traumatism. It appeared on the plantar surface at the metatarsophalangeal articulation of the big or little toes, as a hard, thickened plaque, resembling a corn. Ulceration occurred beneath this patch and the tissues were perforated to the bone. The opening was usually small, with but little discharge, and no pain except on pressure. Certain changes took place on account of nerve impairment, such as an excessive growth of hair, hyperidrosis, pigmentation, and a loss of sensation with thickening of the surrounding surface. After amputation a similar ulcerating surface was liable to develop on the stump. Perforating ulcer of the hand had been observed.

Curettement and the application of stimulating remedies for destroying the growth were usually ineffective. Rest in bed, or measures to lessen the pressure on the affected foot were important points in treatment. Sometimes this cured for a time, but recurrence was the rule. A vitiated nervous system was at the bottom of the trouble, and this was why treatment was so often unsuccessful.

**Dr. Sillers**, in closing, said that the ulcer had been repeatedly cauterized but the benefit was only temporary; nothing finally was left but amputation.



## A NEW SPHYGMOMANOMETER.\*

By J. B. NICHOLS, M. D.,

Washington, D. C.

Dr. Nichols exhibited a sphygmomanometer of his own make, an instrument for determining blood pressure, for clinical purposes. This was usually determined by the examining finger, but recently instruments had been devised for the purpose; they depended on the same principles as the use of the finger. The apparatus consisted of a rubber bag about 16 inches long and 1½ wide, which was bound around the arm, and by inflating which pressure could be applied so as to obliterate the pulse; the bag communicated with a rubber tube and bulb by which it could be inflated; it also communicated with a mercury manometer by which the pressure necessary to obliterate the pulse was indicated. Three instruments for measuring blood pressure had been introduced in Europe, those of Riva-Rocci, Hill-Barnard, and Gaertner, but they were expensive and not yet in the general market in this country. That made by Dr. Nichols was of the Riva-Rocci type; it was simple and inexpensive, and sufficiently accurate for clinical purposes.

[Dr. Nichols demonstrated on a subject the method of using the instrument.]

**Dr. Woodward** inquired whether the resistance of the tissues of the arm did not modify the readings. It would seem that the force required to obliterate the radial pulse by a ligature placed around the arm over the brachial artery would be greater when the biceps was contracted than when it was in a state of relaxation.

**Dr. Motter** said that the apparatus was exceedingly interesting. A number of attempts had been made to secure a reliable instrument for determining blood pressure; this one appeared to have the advantage of being both cheap and practical. A sphygmograph, when applied to the radial artery, for instance, did not allow for the displacement of the tissues, as stated by Dr. Woodward, or for the congestion of the venae comites; moreover, with any of these instruments, the pressure required to obliterate the pulse must obviously somewhat exceed the blood pressure.

He briefly described the instruments which had been devised, and further said that the objection to the mercury manometer was that the column of mercury had enough inertia to render it un-

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\* Exhibited to the Medical Society of the District of Columbia, February 4, 1903.

reliable in recording the blood pressure; hence spring manometers had been devised.

**Dr. Nichols**, at the suggestion of the Chair, spoke of the clinical results obtained by the use of the sphygmomanometer. First, however, he replied to the criticisms of Drs. Woodward and Motter. While Dr. Woodward's objection was theoretically of value, the resistance of the tissues around the brachial artery was practically a negligible factor; it amounted to only 1 or 2 mm. of mercury. The clinical accuracy of the instrument had been demonstrated by many clinical and laboratory tests. The objection mentioned by Dr. Motter had led to the use of spring manometers. The latter, however, were expensive and liable to get out of order.

He was not prepared to state the clinical value of the instrument, as he had used it in only a limited number of cases. In normal individuals he had obtained a reading of 120 to 140 mm. Readings as high as 190 to 200 had been obtained in arterio-sclerosis, and 210 in interstitial nephritis; just before the occurrence of cerebral hemorrhage the blood pressure was very high, and thus the readings were of value in giving warning of a threatened attack.

The clinical value of the apparatus could not be stated with certainty at the present time. Surgeons had used it during anaesthesia; and it was said to afford timely warning of threatening collapse from chloroform. Theoretically it should give definite indications for the use of stimulants and arterial contractors and dilators.

**Dr. A. F. A. King** pointed out an inaccuracy that might occur in determining the blood pressure in this way, in diseases like arterio-sclerosis. The structure of the artery itself must be taken into account; the more the arteries are hardened by calcification or otherwise the greater would be the pressure necessary to obliterate the pulse, and a proportionately higher reading would result. The increase in the readings from this cause should not be confounded with that due to increased blood pressure.

**Dr. Nichols**, in answer to a question by Dr. Motter, said that he had not used the instrument after hypodermoclysis. He further stated that he did not think that ordinary sclerosis of the arteries would cause any inaccuracy in the readings, but calcification might.

## PATHOLOGICAL CONDITIONS IN THE TEMPORAL BONE AND SEQUELAE.\*

BY C. R. DUFOUR, PHAR. D., M. D.,

Washington, D. C.

The temporal bone is one of the most important of the skull, and is somewhat complex in structure. It is therefore necessary that we have a perfect knowledge of its anatomy in order that all the symptoms and signs of the various complications of mastoid abscess, and infective conditions arising from extension to contiguous organs, be recognized and understood. The bone, traversed by many nerves, contains the organ of hearing and structures that preside over equilibrium. It supports the Gasserian ganglion which supplies motor nerves to the lower jaw and sensory nerves to the fore part of the cranium and face. Traversing it for some distance is the seventh cranial nerve, the great motor nerve of the face. It contains the tympanic plexus. Passing through its jugular foramen is the jugular vein and the spinal accessory, vagus and glosso-pharyngeal nerves. In contact with the inner table of the mastoid portion is the lateral sinus, which empties into the internal jugular vein. At its apex is the cavernous sinus, which connects with that on the other side by means of the circular sinus. On the external side of the cavernous sinus is the third cranial nerve, which supplies motion to all the eye muscles except the external rectus and superior oblique; the fourth nerve, which supplies the superior oblique muscle, and the ophthalmic division of the fifth, which supplies sensation to the upper portion of the face. On the inner side of this sinus is the internal carotid artery and the sixth nerve, which supplies the external rectus muscle of the eye. Several cavities, and a canal lined with mucous membrane, continuous from the pharynx to the mastoid cells, are contained in this bone.

Inflammatory and purulent conditions of the temporal bone may impair the functions of the facial nerve, causing paralysis, affecting the play of the features and destroying the symmetry of the face; the mouth drawn toward the unaffected side; difficulty in eating, because the food cannot be controlled on the affected side of the mouth; inability to close the eye on the paralysed

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\* Read before the Medical Society of the District of Columbia, February 11, 1903.



side, thereby endangering the cornea by dessication and ulceration. If paralysis of the facial nerve occurs at an early age it will cause imperfect development of the bones and muscles of the face and the salivary glands. The hearing will be partially or wholly destroyed, the equilibrium impaired, and vision, taste and smell also affected.

The middle ear, the place from which pathological conditions usually start, causing serious affections of contiguous structures, is a small cavity in the petrous portion of the temporal bone, measuring less than half an inch in any direction and surrounded by important vital organs which, if invaded by pathogenic processes may cause impairment of function or even a fatal ending. The boundaries of the middle ear are as follows: The external wall is the membrana tympani; the internal wall, the promontory, formed by the first turn of the cochlea, having on it the oval and round windows, the entrance to the inner ear, which contains the auditory nerve, the semicircular canals which preside over equilibrium, and the cochlea, containing the most intricate structure in the human body, namely the organ of Corti, which presides over definite tones. The posterior part opens into the mastoid cells and antrum; the anterior is bounded by the Eustachian tube, the canal for the internal carotid artery and the processus cochleariformis. The roof, called the tegmen, is thin, translucent bone, which supports the dura mater and temporo-sphenoidal lobe of the brain. The mastoid cells are in relation with the posterior lobe of the brain and cerebellum. The inner ear and lateral sinus are also in relation with the cerebellum. The floor is immediately above the jugular bulb.

The most prevalent pathological condition that affects the middle ear is suppurative otitis media, due in the majority of cases to the exanthemata, epidemic influenza, diphtheria, enlarged pharyngeal tonsils, etc. The pathogenic germs find their way to the middle ear through the Eustachian tube, cause suppuration, which is liable to spread intracranially and infect the brain, its membranes, or both. Acute suppurative otitis media is not so liable to cause serious complications, because the mucous membrane is intact, the bone unaffected, and leucocytes to a large extent prevent the extension of the pathogenic germs. In very severe acute cases, where the inflammation is extensive, thrombosis of the vessels of the mucous membrane occurs and spreads to

and infects the membranes of the brain and large blood vessels. Extensive suppuration may exist in the middle ear and not cause perforation of the drum membrane, but find its way backward and upward to the mastoid antrum and cells or to the brain.

It is chronic suppurative otitis media that causes the serious affections. The mucous membrane is involved and in most cases also the underlying bone. The resisting power of the mucous membrane is partially or completely lost, leucocytes no longer oppose the encroachment of the pathogenic germs, and contiguous organs become affected. The bloodvessels become infected and carry the infection to the brain, lungs, intestines and other organs. The roof of the middle ear, as well as the floor, frequently shows minute perforations which permit the passage of germs upward to the dura or downward into the internal jugular vein. We see how very easily these organs may become affected. Granulation masses form and block the way of the discharge, thus favoring an extension to other structures by damming up the pus and compelling it to find other channels of escape, which may be intracranially or into the mastoid cells and antrum. Different degrees of sepsis may occur from pus absorption. Extensive necrosis occurs, so that the attic, antrum and mastoid cells may become one large cavity by the breaking down of the partitions between the mastoid cells, thus forming one large continuous passage from the middle ear to the tip of the mastoid. Another condition that favors an inward invasion of pathogenic germs is that the extensive inflammation may cause an osteoplastic process, with intense hardening of bone, obliterating the mastoid cells and causing the antrum to become smaller. This sclerosis may not affect the bone uniformly; one portion may be disintegrating while in another the osteoplastic process is taking place. The roof of the middle ear is so thin that disintegration is liable to occur there, and this process, together with the resistance caused by the sclerotic condition of the mastoid, renders easy the inward invasion of pathogenic germs.

The relative frequency with which the temporal bone is affected by caries is as follows: 1st, the mastoid process; 2d, roof of middle ear; 3d, sigmoid groove; 4th, posterior wall of external auditory canal; 5th, floor of middle ear; 6th, petrous portion, containing the organs of the inner ear. The junction between the mastoid, squamous and petrous portions of the temporal bone

is by fibrous union, in infants and young children. Secretions from the middle ear have no difficulty in finding their way through these sutures. In this manner a subperiosteal mastoid abscess is formed, which becomes large and alarming in character, though, if prompt surgical treatment is given, it is not liable to cause abscess of the brain or the meninges, even though extensive necrosis exist. Subperiosteal abscess is usually caused by an infective otitis media, which has invaded the antrum and mastoid cells; the discharge may find its way through the sutures and separate the periosteum from the bone; the abscess causes an intense tumefaction behind the ear, indicating a deeply-seated disease.

It is chronic suppurative otitis media that causes the majority of serious complications; and frequently it is that form of it, lasting several years without very profuse discharge, that has been neglected, and no effort made to keep the ear free from pus, which, on the contrary, is allowed to remain in the ear, causing gradual necrosis of the bone. The time arrives when the pus becomes intensely infective and causes grave conditions in the temporal bone, the brain, or organs more remote, as the lungs or intestines. The most frequent localities for attack are the mastoid antrum and cells forming mastoid abscess; through the tegmen or roof of the middle ear, causing abscess of the temporo-sphenoidal lobe of the brain or an epidural abscess. The groove for the sigmoid sinus comes next as liable to infection, causing abscess of the cerebellum or thrombosis of sigmoid sinus, or both. The bone at these points of attack becomes thin and discolored, thrombosis of the small veins passing through the petro-squamosal suture occurs, and in this manner infection is carried especially to the dura mater. The ossicles are often eroded. The discoloration of the bone is often very apparent and extends to the neighboring tissues. The color is of a greenish cast to a deep green, due to the *bacillus pyocyaneus*. As a protective measure the dura, when exposed to such erosion, throws out granulation-masses which retard the advance of the disease germs; these granulations have been mistaken for aural polypi and snared off, allowing the germs to pass to the brain with serious and often fatal consequences. Often on the visceral side of the dura, opposite the site of erosion, a conical projection composed of granulation cells and plastic effusion occurs, the convex surface projecting against the brain



tissue; the pia is adherent to it. This condition favors infection of the pia and also of other parts of the brain through the blood-vessels.

In tubercular subjects the germs often pass to the middle ear through the Eustachian tube, and are liable to cause all the conditions mentioned, destroying the bone, and causing tubercular meningitis and other grave diseases. One feature of tubercular invasion of the middle ear, I have observed, is that the perforation of the drum membrane occurs without any pain, which leads me to believe that there must be some anaesthetic quality in the germ, for I know of no other disease that perforates the drum membrane without considerable pain.

*Symptoms of extension of suppuration to other structures.—To the mastoid cells and antrum.*—The discharge may or may not have ceased, usually it has ceased, and a slight swelling occurs over the mastoid bone, with tenderness on pressure over the antrum; the ear stands out from the head, its upper part lifted outward and appears on a lower level than the other ear, giving the head a lop-sided appearance. Otolgia sets in, intense and boring in character, and seems to get worse at night; there are nausea and vomiting; temperature not high in uncomplicated cases. The posterior superior wall of the drum membrane bulges downward. Sometimes the symptoms of mastoid abscess are not in proportion to the process going on in the mastoid; the patient may be well nourished, have no temperature and the pulse be nearly normal, yet a very serious condition may be present in the mastoid. Inability to move the head from side to side, although no pain is present, is a symptom which should be carefully investigated; it is frequently seen in children, especially where the mastoid cells are well developed at the tip. Restlessness at night in children who have had a discharge from the ear, and the discharge has ceased, should always excite suspicion. A fluctuating tumor in the neck below the mastoid usually indicates that the pus has found its way through the tip of the mastoid bone.

We meet with cases sometimes in which there is great doubt as to whether an operation should be performed, for the symptoms are obscure. There are two symptoms which when present would indicate the necessity of an operation, indeed sometimes the presence of only one would be a sufficient indication; they are tenderness on deep pressure over the mastoid antrum or tip, or

both, and a sagging of the posterior superior wall of the external auditory canal. If the brain be attacked the symptoms of that particular portion affected will become manifest. If thrombosis of one of the large venous sinuses occurs, symptoms of increasing gravity become manifest. The features become pinched and anxious and of an ashen pallor; there is loss of appetite, constipation, increased and shallow respiration, repeated and severe rigors, with fluctuating temperature and exhaustive sweating. The higher the temperature the greater the degree of toxemia. The period between the different degrees of temperature may be from two to four hours; the thermometer should therefore be used about every three hours. Vertigo and vomiting may or may not be present; when they are they often indicate beginning meningitis. Consciousness may or may not be impaired, it may be lost and delirium set in, or the patient may remain in a somnolent condition, from which he or she may be aroused, reply to questions and relapse into the same condition. Septic pneumonia and enteritis are apt to occur, as well as metastatic abscesses in various parts of the body. Tenderness in the posterior cervical region, oedema of the occipital region and tenderness along the jugular vein are prominent symptoms. Optic neuritis may become manifest. In fact all the symptoms of septico-pyæmia may be present.

*Prognosis.*—A mastoid abscess is always a serious condition. If due to an acute suppurative otitis media it is less serious and usually yields to treatment. In very young children, during or after the exanthemata, especially scarlet fever, this disease may become manifest and frequently advances so rapidly and persistently as to render unavailing all efforts to stop its progress. It usually responds to treatment in adults. A mastoid abscess due to chronic suppurative otitis media is a more serious affair, especially so if there have been attacks of pain in the ear, head and mastoid region, that have ceased spontaneously or after treatment other than surgical. In cases where the perforation of the membrana tympani is in Shrapnell's membrane the destruction of bone is usually greater than when it is in the drum membrane proper, and the osteoplastic process more extensive and the danger from cerebral abscess greater. A brain abscess may develop and remain latent for years and become active from acute inflammation in the tympanic cavity. Age and previous condition must be taken

into consideration when giving a prognosis. If the patient has any disease that impairs his or her resisting power the prognosis is more serious. If there is brain infection, or the large venous sinuses, lungs or intestines are involved the condition is of the gravest character.

*Treatment.*—When a beginning mastoid abscess is recognized, prompt measures should be taken to abort it. The patient should be put to bed in a warm room, a saline laxative given, ice applied over the mastoid continuously for 24 to 48 hours, allowing a short interval if the cold becomes unbearable. The ear should be gently syringed with a hot antiseptic solution, using from a pint to a quart at a time, allowing it to run into the ear very gently. This should be done every 3 hours. If there is bulging of the drum membrane it should be punctured under the strictest antiseptic precautions. The cold should not be used longer than 48 hours, nor should narcotics be given, at least not more than will insure one night's good rest, for the pain is one of our chief guides as to the necessity of surgical interference, so that if the patient's sensibility is blunted by narcotics we will have lost one of the best symptoms we have to guide us in the case. The attempt to abort this condition should not be longer than 48 hours. If by that time the patient is not relieved we should operate; also if the patient has been relieved but the symptoms such as pain with tenderness over the mastoid, etc., return after we cease using the ice and hot douching, operation is demanded. In the subperiosteal mastoid abscess of children, when there is great swelling over the mastoid, it is not sufficient simply to incise the abscess externally, for the bone is usually affected and that portion of it should be removed; unless this is done a similar abscess will form again, while the destruction of bone will continue and eventually cause more serious consequences. I will not consider the surgical treatment of mastoid abscess in this paper, though I will say that I know of no other disease that is so grave in character and so likely to cause such serious consequences as an infective suppuration of the mastoid antrum and cells, and of no other operation that promises such good results as the one for the cure of this disease. It is my opinion that we would have fewer mastoid abscesses and infections of brain and bloodvessels if after treating a suppurating ear for several months and it does not yield to treatment we go into the mastoid bone, clear out all granulations and necrosed



bone, and in this manner cure the suppuration and prevent bad consequences.

I have endeavored, briefly, to illustrate the very serious conditions that are caused by suppuration in the middle ear, and beg leave to call your attention to the fact that the picture is not overdrawn, that these conditions are being constantly met with by the otologist. I have seen many cases, operated on not a few, have seen persons apparently in good health except for a slight discharge from the ear which they had had so long that they paid no attention to it, stricken down with intracranial infection and death ensue despite all efforts made to save. It is the general belief of the laity and, I am sorry to say, of some physicians that a discharge from the ear is an innocent affair and requires no particular attention, while some believe that decided injury will result if the discharge is stopped. Let me emphasize the fact that a chronically discharging ear is a menace to life, and is like sleeping over a volcano that may erupt sometime with fearful consequences. It is true that many go through life with this disease and without serious consequences, but how many brain abscesses and other grave conditions arise from it will never be accurately known, yet we *do know* that a large percentage of brain abscesses and infections of other organs have their origin in an infective suppuration in the middle ear.

#### DISCUSSION.

**Dr. McKimmie** congratulated the essayist on the thorough manner in which he had presented the subject. Diseases of the temporal bone were very interesting. In most instances they originated in a neglected suppurative inflammation of the middle ear, the pus finding its way into the bony tissue. Pus might thus find its way into the antrum, and thence to the mastoid cells where it gave rise to a true bone abscess; in such a case healthy bone must be traversed at the operation before the abscess could be discovered. In these operations the facial nerve was sometimes injured; but the reparative power of the nerve was wonderful, and often there occurred only a transient paralysis which disappeared after a few days. Even when the nerve lay exposed in a pus cavity, facial paralysis might not occur. Sometimes paralysis appeared suddenly, but in most of these cases also recovery took place with remarkable rapidity; the lesion was apparently due to a transient cause like perineuritis or pressure.

One must distinguish between mastoid inflammation and abscess; the former did not always develop into the latter; the inflammation

might subside under treatment and no operation be necessary. Dr. Dufour spoke of vertigo and vomiting as indicating a brain lesion, but it was not safe to base a diagnosis on these symptoms; they might be due to exfoliation of the cochlea and semicircular canals, and this latter diagnosis was more certainly made if there was a co-existent facial paralysis.

Another grave sequela was cholesteatoma which consisted in a proliferation of the epithelial cells in the auditory canal, gradually spreading into and filling the middle ear and antrum, and by pressure destroying the inner wall and adjacent bone. These cases frequently required operation. Cholesteatoma occurred only in chronic cases. In one case seen in Prof. Politzer's clinic nearly all the petrous portion of the bone was destroyed by tubercular disease. Another sequela was exfoliation of the mastoid, external bony canal and tympanic ring.

The reason why operation failed in many instances was due to the fact that the operator simply opened the antrum and did not reach the disease which was situated more deeply. One could not be sure of success in mastoid operations until the cells were opened to the very tip. Injury to the facial nerve and opening the sinus could be avoided by proper care. Dr. Dufour had emphasized the necessity of a thorough knowledge of the anatomy of the parts—good; but the operator should not forget the possibility of the existence of anomalies. The cellar of the middle ear should be thoroughly examined, but with due caution, on account of the possible existence of defects in the bone which might allow the probe to enter the jugular bulb or carotid artery; this accident had happened. The promontory also should be treated cautiously, either curetted gingerly or let alone; the latter was often safest and best.

**Dr. Dye** emphasized the fact that one should not persist in the use of hot or cold applications to the mastoid for more than 24 or 30 hours at most. He had no faith in the efficacy of either of these methods. So-called abscesses which were "aborted" under their use were not abscesses at all.

**Dr. Dufour**, in closing, thanked the Society for the generous discussion of the paper. As to the avoidance of injury to the facial nerve, he explained that he did this by the use of a probe as a guide, inserted behind so as to stop the knife before it reached the nerve.

SPLENIC INFECTIONS WITH REPORTS OF CASES  
REQUIRING (1) SPLENOTOMY AND  
(2) SPLENECTOMY.\*

By A. L. STAVELY, M. D.,

Washington, D. C.

A natural diffidence about interfering with an organ whose relation to the animal economy was so ill-defined as that of the spleen and the rapid death which so often attended attempts at its removal, have until recently retarded the development of the surgical treatment of splenic lesions. Today the indications for operation are fairly well understood, and the results, with a careful technique are most encouraging.

It is impossible to say when the first splenectomy was performed. There is a story that the spleen was removed from runners to prevent "stitch in the side." The first successful splenectomy is attributed to Zaccarelli who is credited with the removal of a malarial spleen in 1549. The authenticity of this statement is seriously disputed. Viard operated in 1581 for traumatic hernia of the spleen with success. There is a report that Ferrerius, in 1711, removed a spleen with happy result where there was a complicating suppurative perisplenitis. Doubt prevents a free acceptance of this record. Pean removed a cystic spleen in 1867 and a movable one in 1876 with recoveries. Up to 1880 there were 48 cases reported with 21 deaths. An interesting fact is that out of 15 operations for traumatic hernia of the spleen all recovered, and of 12 leukemics all died.

Two men, Vauverts, a Frenchman, writing in 1897, and Hagen, a German, writing in 1900, have collected some valuable statistical information about the results of splenectomy. The former in 279 cases found a mortality of 104 or a death rate of 37 per cent.; the latter in 360 cases, 138, or a rate of 38.3 per cent. An interesting fact revealed by an examination of these statistics is the unusual frequency of splenic disease in women. From an inspection of Vauverts' table of splenectomies we find that 183 were women, 73 men and 23 unrecorded. Of 35 injuries requiring operation 30 were sustained by men. This is easily explained by the greater exposure of men to traumatic influences through occu-

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pation. Fifty men and 19 women had operations for malarial enlargements and 16 women and 5 men for cysts. Of 50 patients operated on for floating or ectopic spleens all were women. The explanation of this preponderance is the relaxation of the abdominal walls after labor. In the 50 cases mentioned there is a record of confinements in 29, and in only 3 is the positive statement made that there were no children.

The removal of a functioning spleen is usually attended with some constitutional disturbance. According to McPhedran, extreme anemia, emaciation, daily rise of temperature and increased frequency of pulse, attacks of fainting, headache, drowsiness, thirst, griping pains in abdomen and pains in the arms and legs, enlargement of lymphatic glands, diminution of the red blood corpuscles and increase of the white corpuscles are some of the symptoms. In addition to what have been referred to as results of the operation are also mentioned a frequent diminution of hemoglobin, enlargement of the thyroid gland, congestion of bone marrow, increase of appetite, alteration of disposition, increase of arterial tension and a considerable increase in the amount of urine. Occasionally symptoms are absent. This may be accounted for by the frequent presence of smaller masses of splenic tissue, known as supernumerary spleens, which are not removed with the organ, or to the functionless condition of the organ, due to disease.

Splenectomy may be very simple or very difficult. Without discussing the technique of the operation, it might be of interest to refer to some dangers and complications. The chief danger is that of profuse and uncontrollable hemorrhage occurring at the time of operation, or afterward, from the slipping of a ligature. Traction on the diaphragm and disturbance of the sympathetic plexus may cause a fatal collapse. Extensive adhesions often render an operation impossible. In an effort to deal with them the pleural cavity has been entered more than once. The sudden withdrawal of pressure on the diaphragm, when a large spleen is removed, may cause death. A large spleen and a short pedicle are always the cause of much embarrassment. The removal of a spleen weighing over 3,000 grammes was considered by some good operators a sure fatality. This, however, is a mistake. A profound cachexia is looked upon as a contraindication to operation. Examination of the blood is important. A ratio

of more than 1 to 50 of white to red blood corpuscles and very low hemoglobin percentage are considered prohibitive.

The spleen is very easily disturbed. The temporary enlargement of the organ after eating and the effect of acute infectious diseases upon it are well known. The peculiar arrangement of the splenic vessels and the circulation of blood through the spleen make it unusually predisposed to passive congestions and infarcts. Primary diseases are rare. We have conditions acting by obstruction of the circulation, cysts, and very seldom carcinoma and tuberculosis, and possibly primary anemia. Secondary diseases are common. In health the spleen is well protected by the ribs. When enlarged for any reason it becomes exposed and is in danger of suffering from contusions, hernia and rupture. Among the injuries, rupture is the most dangerous on account of the rapid death from hemorrhage which frequently occurs.

The results of operation are usually good; 15 out of 31 operated on recovered. Vauverts' table of 18 splenectomies for traumatic hernia records 18 recoveries. As 10 of these date back over a century the question of accuracy might be raised. In most of the cases of recovery operation had been performed shortly after the injury.

Of the pathological conditions which interest the surgeon there are tumors, splenic anemia, leukemia, tuberculosis, syphilis, amyloid disease, enlargements connected with cirrhosis of liver, congestive hypertrophies, wandering spleen, malarial hypertrophy, infections (pyogenic), and infarcts. Primary malignant growths are extremely rare. Douglas reports five splenectomies for primary sarcoma with three recoveries. Butlin refers to 7 cases of sarcoma and one of epithelioma with five recoveries; two lived over two years. The cases reported as cancer are considered by some to be a proliferation of endothelium the same as in primary anemia. Vauverts has collected 90 cases of cysts, of which 78 were hydatids; 68 were treated by puncture or incision, with 22 deaths; 22 spleens were removed, with only four deaths.

Splenic anemia or primary splenomegaly, which must be carefully differentiated from leukemia, according to present information, is a disease which has its origin in the spleen and is curable by early removal of that organ. Harris and Herzog, combining Sippy's tables with two cases of their own, give 19 splenectomies with 14 recoveries or a mortality of about 25 per cent. The dis-

ease is progressive and fatal after a variable time if left to itself. The immediate results of operation have been satisfactory, and three are known to have been well for over two years.

Leukemia is one disease in which splenectomy is absolutely contraindicated. As leukemia may closely resemble other diseases, a careful blood examination must be made. Where the ratio of white to red blood corpuscles is less than one in 50, operation is sometimes considered justifiable. The question of removing the spleen in a beginning leukemia has been carefully considered, but its removal will not cure the disease, and the only advantage would be in disposing of an organ which later might give trouble from weight and pressure. Adding 8 cases to Vauverts' list we have 37, with 5 recoveries. Considerably over half of these died, at the time of or shortly after operation, from hemorrhage, and of the five who survived the operation two are known to have died later of the disease. Hagen reports 4 recoveries in a total of 42 cases.

Tuberculosis as a primary lesion is very rare. Hayden (*Jour. Amer. Med. Ass.*, 1898, xxx, p. 778) describes an operation which consisted in incising and packing a cyst of the spleen. In a few months the patient died, and a tuberculous spleen and small tuberculous deposits in the liver were found. He thinks the condition was primarily splenic. Hagen reports three cases with one death. The spleen has been removed for syphilis with recovery. Operation for amyloid disease, like that for leukemia, is not favorably considered. When the spleen is principally affected there might be justification. I find report of one case with one death.

The circulation in the spleen differs from that of other organs, permitting it to become enormously engorged under favoring circumstances. One cause of this distension is mobility, which occurs very frequently after child-bearing and also follows hypertrophy, the result of malaria and other diseases. When the spleen becomes dislocated and movable, symptoms often develop which demand operative interference. This is particularly so in case of torsion. Where a pedicle can be untwisted and the condition is acute, the great engorgement may be relieved and the spleen reach its normal size in a few minutes. Where the torsion has existed for a long time thrombi may fill the veins and permanently interfere with the circulation. Torsions may cause degenerative changes and infections, which will make operation imperative.



Rupture of the spleen and intestinal obstruction are two more possibilities resulting from displacement. I have collected 60 cases of splenectomy for floating spleen with 4 deaths. Hagen gives 87 cases with 14 deaths; Vauverts has tabulated 20 cases of torsion with 8 deaths.

Malarial hypertrophy, or ague-cake, is of frequent occurrence and the size of the spleen is sometimes enormous. It is usual to try a course of quinine or arsenic, but these drugs ordinarily have slight effect on chronic malarial enlargements. Operation would hardly be recognized as regular treatment. The presence of prolonged distressing symptoms is the chief indication. The marked cachexia and hemorrhagic tendency give any operation a serious aspect. Vanverts collected 79 cases with 23 deaths, or a mortality of 29 per cent.; Hagen, 88 cases, with a mortality of about 30 per cent.

Infections of the spleen should not be confused with transient hyperemias nor with the passive congestions which occur with cirrhosis of the liver or heart and pulmonary diseases. Engorgements of the spleen are found in septic conditions and in certain acute infectious diseases, as malarial, typhoid, typhus and relapsing fevers; pneumonia and influenza are considered by some to be *diffuse inflammations*. These conditions are attributed by others rather to the existence of a toxemia, are generally transitory and disappear after recovery from the general disease of which they are a local manifestation. We find the splenic vessels enlarged and the pulp distended with an excessive number of leucocytes and degenerated red blood corpuscles, and often bacteria. The spleen may become so soft and swollen that the least traumatism results in rupture. In chronic inflammations there is a marked pigmentation of the organ and much increase in fibrous tissue. The "ague cake" of malaria is an excellent illustration.

The spleen suffers especially from embolism, and the infarcts so produced may be simple or septic, according to their origin. Malignant endocarditis, through the development of vegetative growths on or around the valves, furnishes most of the splenic emboli. Fragments from thrombi, which occur in connection with aneurism or atheroma of the aorta, simple endocarditis, or pulmonary thrombosis, may become separated and cause splenic infarction. A non-infective embolus causes a cone-shaped infarct, which is hemorrhagic or anemic, according to the amount of blood

in it, and which undergoes coagulation and liquefaction, necrosis and finally becomes converted into scar tissue. More rarely the infarct may undergo caseation or calcification.

An infective embolus may produce an altogether different result. The obstructed areas undergo rapid degeneration, and abscesses frequently form. The symptoms of infarct are generally ill defined. With a septic embolus there may be a chill and pain referred to the region of the spleen. The latter may extend to the arm or leg on the same side. The presence of ulcerative endocarditis and subcutaneous infarcts help the diagnosis. As pain is considered due to an existing peritonitis over the infarcted area, there may be a localized peritoneal friction sound. Enlargement of the spleen may be detected. The fever present may be due to the original disease, or if accompanied by chills and sweats, to a local suppuration. No treatment can be of avail in preventing infarction.

Thrombosis of the splenic vein is infrequent. It may exist primarily in the vein, but usually involves other branches of the portal system. The thrombus may extend backward from the portal vein or forward from the splenic. In obstructive torsion of the splenic pedicle, the spleen becomes greatly engorged and a general infarction may take place with venous thrombosis. If the condition persists, gangrene or suppuration follows.

A case reported by H. D. Rolleston is interesting in this connection. A man who had been in India and had contracted dysentery was in the hospital under treatment for hematemesis. While there he suddenly developed ascites and signs of thrombosis of the left femoral vein. At the autopsy the splenic vein was found occluded with a firm adherent decolorized clot and the superior and inferior mesenteric veins were thrombosed. The superior mesenteric vein was canalized. The spleen, which weighed three pounds, had anemic infarcted areas, surrounded by congestion. The artery was not occluded. The infarction was due to complete thrombosis of the splenic vein, and Rolleston wonders why the whole spleen was not involved.

An infection of the spleen may be directly traceable to the introduction of septic material from without the body, where the thoracic or abdominal wall is injured coincidentally with the spleen. After a local injury, where the skin remains intact and the spleen is contused or lacerated, and the patient does not succumb to

hemorrhage, the intestinal bacteria may migrate and cause infection. Sirleo reports the case of a man who sustained a contusion of the left side followed by pain. Sometime later the patient developed symptoms of obstruction and died. There was a septic peritonitis and an enlarged spleen which was adherent by its lower pole to the angle of the colon. In the interior of the spleen was an abscess-cavity which had opened through the peritoneum into the intestine. Bardenheuer speaks of a suppurating hematoma, which contained a floating spleen. Xarewsky had a patient, a girl of 13, who, sometime after being thrown violently against a wagon, developed pains in the abdomen and fever. Tumefaction became apparent over the region of the spleen and an incision was made with the escape of a large quantity of fetid pus. The spleen was found completely separated from its capsule and was removed. Lampe and Goffe refer to similar cases. A gastric ulcer by contracting adhesions may infect the spleen, and inflammations of any other of the surrounding organs or tissues may by contiguity cause the same result. In fatal cases of infection, hemorrhages into the splenic pulp are common.

An abscess may result from an infection imported through a septic embolus from tuberculosis, from twisting of the pedicle, from extension of infection from a perinephric abscess, a pyothorax or pulmonary abscess, gastric ulcer, from the exterior through an open wound, or from laceration without external injury, from adhesions to intestines, and from involvement by pyogenic organisms of necrotic areas, such as we find in typhoid fever. It is rare in malarial fever. Chondhoory in 30,000 cases saw only three with splenic abscess.

Among the very rare causes is appendicitis. Three references are found. Routier, a month after an operation for general peritonitis of appendicular origin, opened a splenic abscess. Hagen incised a large periappendiceal abscess without relief of the general condition. A month later the patient developed pain in the left flank and intermittent fever, due to the formation of an abscess of the spleen.

Goffe had a young boy with contusion of the spleen who recovered; six weeks later he operated for appendicitis and peritonitis. At the autopsy which occurred shortly afterward he found an abscess in the spleen. In the last case appendicitis as the direct cause is a little in doubt, as there was a preliminary injury to the



spleen. A very unique ascribed cause is circumcision, done for phimosis. Shortly after operation the patient had febrile symptoms and diarrhoea and later pain and swelling in the region of the spleen.

An abscess may be multiple or single. The multiple abscesses are the result of infected emboli and are generally situated near the surface. They may by coalescence form a very large abscess, generally found in the upper half of the organ. An abscess developing from some purely local infection is usually single and may reach a greater size than is found in the embolic form. There is another kind, in which the whole spleen, from the intensity of the infection, is converted into a mushy mass of blood, pus and degenerated tissue. The pus from the spleen is usually dirty red or chocolate colored, and contains shreds of disorganized splenic tissue. This is found especially where the spleen is converted into a purulent, softened mass. On the other hand, it may be like ordinary pus. One operator described it as a bluish-yellow fluid.

The constitutional symptoms of splenic abscess are in no way different from those of other abscesses. There may be some confusion from the complicating symptoms of the general disease, of which the abscess may be only a local manifestation. The local indications,—swelling, fluctuation, tenderness, redness and peritoneal friction sound, may be present in part or whole. The pain, which is not always constant, may be severe, sharp and radiating, or dull and rather diffused. The existence of pain indicates some peritoneal involvement, though simple distension of the peritoneum by a large abscess is considered a possible cause in the absence of adhesions.

In general peritonitis, pyogenic or tubercular, the peritoneal investment of the spleen is involved. An inflammation of the splenic peritoneum or perisplenitis is due also to local conditions, among which are intestinal and gastric ulcers, empyema of the pleura, infarcts, abscesses, acute splenitis, torsion of the pedicle and tumors. The peritoneum is dull and congested, and often-times covered with patches of lymph, more or less organized. Adhesions to surrounding structures are usually present. In suppurative perisplenitis the spleen is encapsulated by the peritoneum of the adjoining parts, and bathed or floating in a purulent exudate. This is observed in tubercular disease. When the peri-

splenitis has existed for a long time the capsule becomes much thickened. Perisplenitis, not involving the whole surface, may exist without involvement of the splenic tissue, as in the case of Sutton, where an abscess formed, due to perforation of the colon, in which the spleen constituted part of the abscess-wall.

The outlook in an undisturbed splenic abscess is bad. Rarely it undergoes inspissation or calcification; exceptionally it burrows its way along the line of least resistance and ruptures into the peritoneal cavity, causing fatal peritonitis; or what is more common, it discharges into the bowel, stomach, lung or kidney and forces its way out through one of the avenues furnished by these structures. A case of spontaneous rupture externally has been reported.

The treatment is incision and drainage or splenectomy, and is ordinarily successful where the spleen has contracted adhesions to the parietal peritoneum. Of thirteen cases so treated, none died where the abscess was situated high up. Lauenstein in one case resected the ninth rib and opened the abscess with a cautery. Splenectomy, too, has been quite successful. Nine removals are recorded, three for suppurative perisplenitis, and two deaths or 22 per cent. The three perisplenitis cases recovered. With most of the others there were complicating adhesions.

Some of the reports are interesting. Stewart (*So. Calif. Pract.*, 1898) removed a large adherent spleen full of embolic abscesses. The patient died. E. Collin cites a case where an abscess involving the entire spleen ruptured into the pleura. W. C. Howe (*Med. News*, Phil., 1893, LXIII, p. 405), had a patient, a man, aet. 21, a welldigger, who had some pain in the left hypochondriac region with marked bulging over the splenic area and temperature of 102. After two months of various treatments, including cold, poultices and quinine, the abscess was incised and two quarts of shreddy pus set free. About two weeks later he had a copious purulent movement and a week afterward coughed up large quantities of pus. He finally recovered. Hogen reported a case of abscess where the remaining splenic wall was so riddled with small abscesses that he curetted it away, leaving only a small stump of tissue at the hilum. There was almost no bleeding. Reginald Harrison describes the case of a man, aet. 30, who some time after a severe fall, developed shooting pains and swelling of legs, temperature 100, and dulness over bases of lungs. On the

left side in the region of the spleen was an increased area of dulness with pain and tenderness. The urine was normal. Finally a decided swelling was noted with an increase of temperature to 102.5, leucocytosis and fluctuation. He began to pass pus in the urine. After three aspirations and a final incision with drainage and removal each time of a large quantity of pus, the man recovered.

A case which I wish to report in this connection was referred to me by Dr. Collins. I have reason to believe that the diagnosis was splenic abscess with perforation of the kidney and discharge of pus *per urethram*. The history is as follows: Mrs. W. W., aet 33, married, has been living in Washington. Her father died at the age of 56 of Bright's disease; her mother is asthmatic, otherwise in good health. Three sisters living and well. A history of tuberculosis on mother's side; two aunts dying of the disease. The patient had had measles and whooping cough. Menstruation began at 13, was regular and normal in every respect. For three years has had leucorrhoea. Has had two children, one born in 1899 is living and healthy. She never has had any abortions. In 1899 she had frequent micturition with burning, which lasted about three weeks. Since then, up to the present attack, the urine has been, to all appearances, normal.

*Present illness.*—About Christmas, 1901, she began feeling weak and suffered with pain and cramps in the epigastrium, and later in the small of the back. From this time to July 6, 1902, she had pain also in the left lumbar region. She contracted, as she said, a heavy cold on her lung, with but little cough and expectoration, but had very severe pain in the region of the left kidney and was compelled to go to bed. July 10, 1902, she emptied the bladder three different times, and each time the contents presented the characteristics of nearly pure pus. Two days later she noticed more pus. She grew weaker and more anemic, and the pain in her side changed to a soreness. Did not menstruate in January, and since then the menses have been scanty or absent. Appetite very poor, bowels regular. Slight, hacking cough, with some greenish or whitish expectoration.

Examination showed a very anemic woman, fairly well nourished; abdomen rather full, the most prominent part being to the left of the navel in the hypochondrium. Here there was a decided resistance, marked pain and soreness extending around into the



flank. Resonance along the lower part of the thorax and in the epigastrium, dulness laterally and behind. Bimanually an indistinct, rather firm mass could be felt. The cervix uteri was dilated to exclude the possibility of a purulent discharge coming from the uterus.

Her temperature before the operation ranged between 100 and 102.2; after the operation the elevation persisted, but seldom exceeded 101. Her pulse before operation ranged between 110 and 135; afterwards it continued rapid, only once or twice going down to 100. For a short time her condition was precarious. The urine and pus in several examinations showed no tubercle bacilli. The urine before operation was yellow, alkaline, cloudy, 1017, and contained epithelium and numerous leucocytes. For the three days following operation it contained fine and coarse granular and hyaline casts in varying degree. After that they entirely disappeared. There was also an increase in the amount of albumen. The last analysis, made 18 days after operation, showed still a few leucocytes. A blood count made before operation gave 3,543,000 r. b. c. and 38,200 w. b. c., hemaglobin 46 per cent. There were no malarial parasites. Her condition at the time of operation was very bad, and no attempt was made to catheterize the ureters. Operation July 23. A preliminary median exploratory incision was made. A large adherent mass was felt in the left hypochondrium. The right kidney was movable and situated below the level of the navel. It was regular in shape and smooth, but somewhat enlarged. Two or three enlarged glands could be felt under the liver, near the common duct; they were deeply located and would not admit of easy removal. The incision was closed, the patient turned on her right side and a lumbar opening made on the left side, extending from the ribs downward about three inches. An abscess sac was entered, from which discharged over a pint of yellowish, slightly odorous pus containing some shreddy material.

The cavity extended between four and five inches above the thoracic margin. Below, a somewhat irregular prominent mass of tissue could be felt which suggested the upper pole of the kidney. No sinus could be found. The cavity was irrigated with salt solution and closed, leaving a large drainage tube in place for future discharges and irrigation. As much as possible was accomplished considering her weak condition, and no attempt

was made to explore the kidney. About a month after leaving the hospital she showed some decided improvement. She had slight daily rises in temperature and was still weak and anemic. Some four months later, the improvement was marked. The temperature ranged within about a degree of normal, and normal, pulse slower, and she had been out several times. There was an increase of 13 pounds in weight, and the only unsatisfactory condition was the existence of a small sinus, from which discharged a little pus, enough to require the use of a dressing.

The following case possesses much interest on account of several unique features. The diagnosis was complicated, consisting of displacement of the spleen, malarial hypertrophy, hemorrhage, suppurative perisplenitis, infective splenitis, thrombosis of splenic vessels and infarction. The history is as follows: Mrs. W., aet. 32, white, domestic, admitted to the Garfield Memorial Hospital July 30, 1900. She was born in New York, came to Washington when five years old and has resided here ever since. Has had measles and whooping cough. At 16 she had a severe and prolonged attack of tertian malarial fever which lasted three months. Since then she has had a series of mild recurrences. At 25 she had rheumatism which continued for six months. She has always suffered from indigestion, but particularly during the last year, when she noticed pain and a feeling of weight in the epigastrium and left hypochondrium after eating. This lasted for about an hour and a half, and was attended with acid eructations and often with a sense of suffocation and palpitation.

Menstruation began at 16. The periods have been regular, lasting from four to seven days, rather profuse and without pain. She has had four children, the oldest 12, the youngest 2 years old; all her labors were normal. After the birth of the third child eight years previously, her physician called her attention to a tumor on the right side of the abdomen about on a level with the crest of the ilium. The growth was hard, about the size of a baseball, seemed larger when she was lying down and was somewhat movable. She observed no especial change in its size until a year ago, when it underwent a gradual augmentation and during the last month had become very large. The tumor had always been tender to pressure, and wearing corsets or tight clothing was impossible. During the last year she had felt sharp, shooting pains through it at intervals. Along with these was a severe

burning sensation in the upper part of her back. Four years ago she had severe paroxysms of hypogastric pain, lasting from 10 to 15 minutes, during which she had to bend sharply forward. She became weaker and lost flesh for several years, but this was especially marked during the last year.

About two weeks before admission, July 15, she was attacked in the region of the tumor, with violent pains which lasted a week. Three days before admission there was a recurrence of the pain, which became intense, and subsequently tenderness developed through the entire abdomen. Her appetite had failed, and for a few days she was unable to retain nourishment, vomiting shortly after attempting to eat. Then she was able to retain food but had gastric discomfort and acid eructations, an unpleasant taste and offensive breath. The bowels were constipated. There was inability to pass urine and when the attempt was made she had severe tenesmus. Resort to the catheter was necessary. She had no chest pains nor cough, but there was excessive dyspnoea and palpitation on slight exertion. She worried easily, was of a nervous temperament, had occipital headaches and slept poorly. The temperature on admission at 3 p.m. was 100.6.

She was emaciated, sallow and very anemic. On inspection of abdomen there was a marked projection of the right half. The firm, smooth, slightly convex surface of an abdominal growth could be felt, extending from the ribs into the pelvis. Laterally it reached well into the flank and over to the linea alba. There was no fluctuation, and pressure in front imparted an impulse to the hand held behind. Slight tympanites. The area of normal splenic dulness was absent. Heart, lungs and liver seemed normal. The vaginal outlet was relaxed, the cervix high and small, and the uterus pushed backward. On the left vaginal fornix the finger met a firm resistance, and by carrying it farther to the left, it encountered a sharply defined edge. A diagnosis of hypertrophied septic malarial spleen was made and splenectomy decided on. Through the kindness of Dr. Van Rensselaer, I assumed charge of this case, and with his assistance the operation was performed August 6, 1900.

In palpating the abdomen after etherization a decided change in the physical characteristics was observed. The hard, smooth mass was replaced by a fluctuating one, and only after firm pressure could the original tumor be felt beneath the fluid layer. It



was evident that there had been a rapid accumulation of some kind of fluid. A median incision about six inches long was made through the abdominal walls. The omentum was adherent to the anterior wall, but the adhesions were light. Upon stripping the omentum free from the bladder, to which it adhered, there was a copious discharge of about a quart of dirty, chocolate-colored fluid. After the removal of this fluid the true condition was observed. There was a large sac lined with yellowish plastic material and containing a very large, softened, dark and degenerated spleen.

A few adhesions between the spleen and sac on one side were freed and the hand passed around to get an idea of the size. It extended from the pelvis to the diaphragm, occupying most of the right side of the abdominal cavity. The spleen shelved out so as to make it impossible to expose its pedicle, which was short. The attachment was to the right side of the spinal column. A number of short vessels within a length of six inches could be felt, constituting the pedicle. The method adopted was to pass a ligature on a carrier and make a deep tie; then to clamp the vessel on the spleen side and cut between. The first step was accomplished without hemorrhage and the next vessel was treated in the same way. After cutting this the spleen could be raised so as to expose the rest of the pedicle. The remaining vessels, five or six in number, were ligated under direct inspection and the spleen removed without further difficulty. Examination showed a complete thrombosis of the splenic vessels, and there was not a drop of fresh blood lost during the removal of the organ. After a thorough cleansing of the sac, a portion of the thickened omentum was removed and the edge stretched to the parietal peritoneum to shut off the perisplenitic sac from the intestines on the right. A drain was established through part of the wound in front and a counter opening for drainage was made in the side. The spleen, after removal, weighed 944 grams, or about 30 ounces.

The sudden access of fluid noticed before operation was undoubtedly due to an escape of old blood from the spleen from an injury inflicted during some manipulation. This, mixing with a small quantity of purulent fluid already present, accounted for the changed condition.

The loss of blood, too, easily accounts for the decrease in size

of the organ. There were no complications apart from a little pain and vomiting during the first 24 hours. Her maximum pulse rate was 130. The highest temperature before operation was 102.4; the highest afterward, 102. It reached nearly normal in ten days and fluctuated a little after that for about six weeks, on account of some continued suppuration of the sac. After the operation no hope was entertained of her recovery, on account of the evident septic condition of the thrombi; but she recovered. When seen a year later the improvement was so marked that it was difficult to recognize her as the same woman.

A careful blood count was made before and after the operation. The effects of removing a functioning spleen are to increase the number of white blood corpuscles and decrease the hemoglobin and red blood corpuscles for a time. After a varying period the normal proportion is reestablished, everything else being favorable. In our case the following counts were made: July 31, r. b. c., 3,584,000; w. b. c., 20,000; hemoglobin, 83 per cent.—179. Aug. 2, w. b. c., 23,550. Aug. 3, w. b. c., 25,666. Aug. 6, day of operation, r. b. c., 3,820,000; w. b. c., 23,200; hemoglobin, 75 per cent.—168. Aug. 7, day after operation, r. b. c., 3,888,000; w. b. c., 24,308; hemoglobin, 75 per cent. Aug. 9, r. b. c., 4,003,920; w. b. c., 17,094; hemoglobin, 65 per cent.—240. Aug. 11, r. b. c., 4,580,000; w. b. c., 11,916; hemoglobin, 80 per cent.—384. The count showed much fluctuation. The last count made was Sept. 27: r. b. c., 4,176,000; w. b. c., 12,125; hemoglobin, 80 per cent.—344. These counts are not consistent with those obtained after the removal of a functioning spleen, and this is due to the fact that the organ was infected and not functioning. Instead of an increase of the white blood cells, and a decrease of the reds, the opposite occurred. The hemoglobin percentage was reduced about 10 points, to 65 per cent., for a few days. The drainage tracks closed after several weeks.

The following is the pathological report, for which I am obliged to Dr. J. B. Nichols:

September 5, 1900. The spleen removed by operation from L. W., August 6, 1900, had approximately the shape of the normal organ, but was greatly enlarged to four or five times its normal size, weighing 944 grams (about 31½ ounces) and measuring 23.7 by 11.9 by 6.8 centimeters (9½ by 4¾ by 2¾ inches). It was soft and friable in consistency, and was intensely engorged and dis-

tended with blood throughout its substance; its larger vessels, both arteries and veins, were filled with thrombi. Microscopical examination shows the parenchyma and retiform spaces of the organ to be infiltrated and greatly distended with a massive extravasation of blood, with some hypertrophy of the retiform framework. Cultures from the organ yield growths of the staphylococcus pyogenes albus and bacillus coli communis.

A case reported by Dr. J. Collins Warren bears a close resemblance to that just described, minus the perisplenitis. Splenectomy was performed by F. B. Lund for rupture of an infarcted spleen. A man, aet. 26, was taken to the Boston City Hospital with severe epigastric and left side pains, which were greatly aggravated by his lifting a heavy basket. He had had attacks less severe for several months, was thin, anemic, restless, groaning and thirsty. He had an anxious expression, moist skin and dry tongue, and vomited a greenish fluid. There was some abdominal distension and epigastric tenderness. Free fluid and increase of dulness over splenic area. Temperature 101, pulse 124. A diagnosis of peritonitis, probably due to gastric ulcer, was made and operation performed. About two quarts of blood were emptied out and a large ruptured infarcted spleen removed. The splenic vein was filled with a thrombus. After thorough washing of abdominal cavity and leaving in salt solution, the incision was closed. The man died on the fourth day. At the autopsy, thrombosis of the portal vein, extending into the splenic, and of a vein along the greater curvature of the stomach was found. The most frequent cause of complete infarction, torsion of the pedicle, was not present in Lund's case nor in ours. The rupture is easily explained by pressure against or other injury to a softened and distended spleen. In our case there was no distinct rupture of the capsule. It was more like an extravasation.

#### DISCUSSION.

**Dr. Nichols** said that splenic disease was interesting to the physician and surgeon alike. Two of the conditions mentioned were of special interest to the general physician, splenic leukemia and splenic anemia. It was difficult to see how splenectomy could be of value in the former because the splenic lesions were secondary; the latter, on the other hand, was in many cases readily and only curable by operation. Splenic anemia was rather indefinitely characterized by an association of hypertrophy of the spleen with severe anemia. The two conditions might supposably exist in the same individual and be due to entirely different causes.



Splenic anemia was more amenable to medical treatment in children than in adults. Osler had recently given a most excellent description of a form of the disease found in adult life [Dr. Nichols recounted the principal points as set forth by this author]. The fact that the spleen could be removed without injuriously affecting the health of the individual raised the question as to the functions of the organ and pointed toward its uselessness. One suggestion was that it aids the body in resisting attacks of disease.

**Dr. I. S. Stone** said that he had enjoyed listening to the essay; it had well supplemented one which he had heard read by Dr. Douglas of Nashville several years ago. Dr. Stavely had performed the operation admirably, and he congratulated him on the result, as the condition of the patient must have been very unfavorable. He himself had operated but three times for splenic disease: 1, for carcinoma of the organ; 2, for tuberculosis, and 3, for torsion of the spleen. In the last case the vessels of the pedicle were filled with thrombi.

**Dr. Bovée** said that he had already reported to the Society the cases of splenic disease in which he had operated. The symptoms which followed splenectomy were sometimes terrific enough to make a timid man hesitate before doing the operation again. They were more marked in adults and when the spleen was nearly normal. In his cases the spleens weighed 7, 12 and over 3 pounds respectively. In the case of leukemic spleen the patient died on the table, of collapse, the heart instantly stopping. The method of securing the vessels was important. Some of them were sometimes as large as the femoral, were very short, and the spleen itself was in the way, which made ligation unusually difficult. His plan was to clamp the vessels one after another and cut between the clamps. This was repeated until all were tied, the spleen being turned up as soon as practicable; then they were re-ligated. The arteries should be controlled before the veins, because the structure of the spleen made it possible for it to swell rapidly under the influence of the blood pressure. This backing-up of blood in an enlarged spleen had produced fatal results. Death occurred from hemorrhage and shock, and sometimes from infection. Examinations of the blood before operation were absolutely necessary. If there was found a diminution in the percentage of hemoglobin, and a considerable increase in the number of leucocytes, operation could not be done with good chances of success.

**Dr. Stavely**, in closing the discussion, agreed with Dr. Nichols that splenic enlargement was often associated with anemia constituting a condition known as splenic anemia, and that in this form operation held out good hopes of success. Several successful cases had been reported, some patients having lived two or three years without recurrence. It was possible that the diagnosis in his first case was a mistake; the diagnosis was presumptive, but a fair one.

OPERATION FOR CATARACT WITH REPORT OF  
65 CASES.\*

By E. OLIVER BELT, M. D.,

Washington, D. C.

Operations for cataract have been performed for at least a thousand years. Yet the nature of the trouble has only been known since 1692, when Maitre Jean convinced himself that a cataract was an opacity of the lens. Up to 1735, when extraction was first practiced by Daviel, the usual operation was that known as *couching* or *depression*, whereby the lens was displaced downward and backward into the vitreous, giving immediate vision and apparently brilliant results, but too often resulting in severe irido-cyclitis, and final loss of vision in that eye, and frequently blindness in the other from sympathetic inflammation. Mooren says that in two years he saw 21 eyes lost by this method, and of these, six lost the other eye by sympathetic ophthalmia.

*Discission* of cataract was not extensively practiced until 1787. It was performed for senile as well as for soft cataracts up to within 50 years of the present time, since which it has been practiced only for soft cataracts, or ripening immature senile cataracts.

After *extraction* was introduced by Daviel various methods were practiced, that devised by Beer soon becoming the most popular. While Daviel made the corneal section with curved scissors, Beer used the well-known knife which bears his name, made the section of the cornea inside the limbus, and separated the lower half of the cornea from the sclera. The capsule was then divided and the lens removed through the pupil without iridectomy. Many eyes were lost, after this operation, by suppuration of the cornea, and Von Graefe, thinking this due to the large corneal flap, suggested what was known as simple linear extraction. As first practiced by him, section was made in the upper part of the cornea with a lance knife and combined with iridectomy.

The corneal section was found however to be too small, making it difficult to express the lens, and he abandoned this method and introduced what he called the "modified linear extraction." The section was made with a narrow-bladed knife which has taken Von Graefe's name, though its use was first advocated by Tenon. The point of entry was through the sclera, where the vertical

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\* Read before the Medical Society of the District of Columbia, February 4, 1903.

tangent of the cornea is at a distance of one to one and a half mm. from its margin and the exit at the opposite corresponding point; the center of the section was just behind the limbus. While suppuration of the cornea became less frequent, iritis, irido-cyclitis and sympathetic disease of the other eye became more common, from proximity to the ciliary region. Operators of the present day, with antiseptic methods, having little fear of suppuration, are therefore making the section at the limbus or in the transparent cornea, making it upward with a flap embracing about two-fifths of the cornea. The Von Graefe knife is quite universally used; many surgeons now operate without iridectomy, some only do the simple extraction in cases thought to be especially suitable, while others adhere to the combined operation, holding that there is much less risk of prolapse of the iris and attendant complications when a small portion of the iris is removed. Though the round mobile pupil is greatly to be desired, the risk of prolapse of the iris is undoubtedly much greater when an iridectomy is not done. The after treatment varies with different operators; many use eserine after simple extraction, while others think it tends to produce iritis and use only a solution of salt or boric acid for cleaning the conjunctival sac. Atropine is instilled after the second or third day, and seems to be universally used when an iridectomy is made. Some close both eyes with a roller bandage, others use a simple bandage, closing one or both eyes. Chisolm, for years, closed only one eye with a small strip of adhesive plaster and had uniformly good results. One operator has published the results of 100 extractions treated by the open method; six of these had prolapse of the iris; five, loss of vitreous; one, panophthalmitis, and three, inflammation resulting in loss of all useful vision; results too bad to encourage others to try the method.

In the following report I will give the last 50 consecutive cases of senile cataract that I have operated on at the Episcopal Eye, Ear and Throat Hospital, and 15 cases of soft cataract operated on during the same period. Their ages varied from 3 years to 90. Of the senile cataracts, 12 were operated on without iridectomy, all obtained good results and there was no prolapse of iris in any, though there was extensive loss of vitreous in one, and they included the patient aged 90. Of the remaining cases operated on with iridectomy all had good results except three. In the first of



these the patient was 67 years old, the operation was smooth, and everything seemed to be doing nicely until the third day, when there was chemosis of the conjunctiva. This was probably due to the patient's rubbing the eye, as she had no further trouble for 10 days, when I found the corneal wound open and blood in the anterior chamber, the result of rubbing. She had only light perception.

The second case was 76 years old, and suffered with rheumatism. Iritis followed operation on both eyes, resulting in occluded pupils; later an iridectomy was done on one and she obtained a good result. She would not remain to have an iridectomy on the other.

The third case was an old colored man from Hayti. Contrary to my usual custom I operated on this patient the day he was brought to the hospital, as his son was anxious that the operation be immediately done. There was a little mucous secretion at the inner canthus, but it was not thought to be serious. The operation was smooth and perfectly satisfactory, but the next day there was a muco-purulent conjunctivitis. This was followed by infection of the wound and loss of the eye. Some weeks later, after careful treatment of the conjunctivitis which also affected the other eye, it was operated on and a fine result obtained.

Several patients ruptured the corneal wound, one on the fourth, one on the fifth and one on the tenth day after the operation. None resulted seriously, but healing was tardy. I now invariably cover the eye with a mask until I think all danger is over.

Of the 15 soft cataracts, 14 received good vision. One left the hospital against my wishes on the sixth day; there was no evidence of trouble on the tenth day, but on the fourteenth he returned with an irido-cyclitis and pus in the anterior chamber. This is the only case in which I have ever had serious trouble follow a simple needling and it is difficult to account for inflammation beginning two weeks after the operation.

The lens was extracted in seven cases after needling had failed to cause absorption, the result being good in all.

To obtain a high percentage of successful results no operation requires greater skill or more careful attention to the details of aseptic surgery than operation for cataract. With these, results are brilliant; without them, failure follows failure. Slight infection following other operations may mean only retarded healing, but after cataract operation it means loss of the eye. I insist on

the patient coming to the hospital the day preceding the operation. He becomes accustomed to his surroundings, and is better prepared for the operation. A gentle cathartic is usually given, the eyes are carefully irrigated with some mild antiseptic, and this is repeated the following morning and immediately preceding the operation. The instruments are sterilized by boiling or alcohol. A 10 per cent. cocain solution is used before and after the corneal section is made, and a simple extraction is made unless there is some tendency to prolapse of the iris, in which case an iridectomy is done. The use of atropia begins on the second or third day after simple extraction or immediately after extraction with iridectomy. Both eyes are closed with cotton pads and bandage held by tapes. The patient is put to bed in a room slightly darkened and kept absolutely quiet for 24 to 48 hours, during which time he is kept on a liquid diet. The eye is examined daily and gently irrigated with boric acid solution. If all goes well the eye not operated on may be opened the fourth or fifth day and the patient may sit up. The other eye may be left open by the end of a week and dark glasses worn. The room, at first moderately dark, may be made lighter day by day; but all glaring light should be excluded. Usually by the fourteenth day the patient can leave the hospital, but should do no work for a month.

It would be better if glasses were not prescribed under six weeks or two months, as the cornea reaches a more stable condition in that time, and there will not be so much astigmatism. Less astigmatism would probably result if compresses and bandages were not used, the lids simply closed with adhesive strips, and the eyes protected with a mask of wire or transparent celluloid.

#### DISCUSSION.

**Dr. Burnett** said that the extraction of cataract was the capital operation of ophthalmic surgery; hence its interest. Every point mentioned by Dr. Belt had at one time or other given rise to discussion, and all were not yet settled. Great progress had been made in methods and results in the operation for removal of cataract. Whereas it was formerly unsuccessful in 10 to 20 per cent. of cases, two per cent. was now considered disappointing. The great danger was from suppuration, and every effort was therefore made to prevent it, as the appearance of even a few drops of pus in the anterior chamber meant loss of the eye. The advances have been made along the lines of greater simplicity in methods employed. The operation looks simple enough, but as a matter of fact it is

one of the most delicate of all operations; every step must be taken just so or failure results. Great experience was therefore necessary for a perfect technique.

The popular operation in America today was the simple method without iridectomy. He was a student in Paris when its modern originator advanced it. Cocain brought the operation to its present final success. He had never voluntarily done an iridectomy since cocain came into use, because it was painful, disfiguring and often unnecessary. He used two drops of a 4 per cent. solution of cocain; he did not use a lid retractor, the upper lid being held by an assistant. Trousseau, of Paris, did the whole operation with only one instrument, a knife, opening the capsule as the knife was passed through the anterior chamber.

*Preparation of the eye.*—The less it was handled, the better; it was easy to over-do and cause irritation. He used sterile salt solution or boric acid instead of bichloride on this account. The edges of the lids should be thoroughly cleaned and sterilized.

*After treatment.*—The rule of simplicity applied here, too. Twenty-five years ago both of the patient's eyes were bandaged tightly and he was kept in a dark room for 10 days or two weeks. Mental derangement had resulted from this needless hardship. The patients were now treated in an open ward; the eyes were not diseased and hence light did not hurt them; some operators bandaged only one eye. He believed all bandaging was liable to do harm. We cannot immobilize the globe by a bandage, or prevent displacement of the lips of the wound, but on the other hand bandages can cause gaping and displacement, and they kept pernicious microbes in and favored their development and multiplication. The tears were nature's irrigating fluid and the lids were the best splints. He was now trying to do without bandages. Instead, he had used recently a pair of automobile goggles; they were not open to the objections above mentioned, and in this case they had given perfect satisfaction. The patient was discharged with a perfectly clear eye in 10 days. One case, however, proved but little, and he preferred to use the goggles in other cases before making too positive statements with regard to their usefulness.

**Dr Shute** advocated the use of argyrol as a preventive of supuration. He had recently observed 21 cases of ophthalmia neonatorum in which protargol and the other means ordinarily employed had very little effect, so far as the purulent process was concerned, but argyrol proved an efficient remedy. It might be only a coincidence, but he had obtained exceptional results in his last six or eight cases from the use of a 25 per cent. solution of argyrol, instilled every three hours, night and day; the pus was gotten under absolute control in 48 hours or 72 at most. It was a non-irritating antiseptic and astringent fluid, and penetrated deeply, as had been shown by laboratory experiments. He believed it to be the best antiseptic at hand for use before cataract operations.



**Dr. A. F. A. King** had seen in the current number of the *London Medical Press and Circular* an interesting report of a thousand operations for cataract; the author was an Englishman, Dr. C. Bell Taylor. [Dr. King read extracts from the article which showed that this surgeon dispensed entirely with iridectomy.] He used a knife of a peculiar shape, made with part of the handle at right angles, so as to enable the operator to always use the right hand in operating on either eye.

**Dr. Belt**, in closing, said that the proportion of failures from cataract operation 25 years ago was even more than Dr. Burnett had stated. In 1833, 60 per cent. of eyes were lost. He never used bichloride after making the corneal section. He had used argyrol to good advantage in purulent ophthalmia and thought it a good substitute for silver nitrate in this and similar conditions; in cataract operation though, he feared it might produce an undesirable irritation.

He believed that some form of bandage was necessary to prevent displacement of the lips of the wound; aged patients were forgetful and were liable to rub the eye, or this might be done in sleep. The disadvantages connected with bandaging were mainly the danger of causing undue pressure, and the keeping in of germs. The open treatment was risky; the eyelid when open came just to the line of the incision, and this might cause displacement of the edges. Hence it was best to keep the eye closed until primary union occurred, and for this purpose he recommended closing the lids with a light adhesive strip and covering the eye with a shield.

Concerning iridectomy opinions differed; Fuchs, of Vienna, preferred to make it; Knapp, of New York, on the other hand, did not ordinarily use it. He did not think that Von Graefe's knife could be improved on.

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## PROCEEDINGS OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

**Stated Meeting, Monday, January 5, 1903.**—The President, Dr. S. S. Adams, in the Chair; over 110 members present.

The Treasurer made the following report for the year 1902:

Cash on hand Jan. 1, 1902,	.	.	.	.	\$1,307.33
Loan,	.	.	.	.	1,000.00
Receipts: Initiation fees,	.	.	.	\$365.00	
Dues,	.	.	.	1,208.00	
Interest,	.	.	.	83.91	
Miscellaneous,	.	.	.	.01	
				<hr/>	1,656.92
Total,	.	.	.	.	<hr/> \$3,964.25

*Expenditures.*

Paid salary, Recording Secretary, . . . . .	\$200.00
“ “ Treasurer, . . . . .	100.00
Fees : Janitor, . . . . .	120.00
Expenses : Recording Secretary, . . . . .	11.01
“ Corresponding Secretary, . . . . .	277.36
“ Executive Committee, . . . . .	67.94
“Transactions,” 1901, and ANNALS, 1902, . . . . .	1,213.29
Miscellaneous, . . . . .	118.05
	<hr/>
	2,107.65
On hand Jan. 1, 1903, . . . . .	<hr/> \$1,856.60 <hr/>
Estimated value of Society's property, . . . . .	\$92.50

During the year two members were dropped for non-payment of dues; two resigned; six died; remaining, 346.

Applications from the following candidates for active membership were read and referred to the Board of Censors: Drs. Charles H. Clark, Francis S. Machen, Henry M. Jewett, Truman Abbe, G. W. Warren, D. H. Hazen, A. B. Bennett, Jr., J. F. McKaig and Frank Lee Biscoe.

The dues of delinquent members who had been abroad in the service of the Government were remitted for the time they were away.

Dr. Geo. M. Kober was elected *President* for 1903.

Dr. S. S. Adams, in retiring from the presidency, made appropriate remarks, thanking the members for the generous support which they had given him; and Dr. Kober, in taking the chair, thanked the Society for the honor which it had conferred upon him, and spoke most highly of the results accomplished during the previous year by his predecessor; much of the Society's success had been due to the persistent and well-directed efforts of its presiding officer. A vote of thanks was extended to Dr. Adams for the able, efficient and successful manner in which he had discharged the duties pertaining to the presidency.

The following additional officers were elected: *Vice-Presidents*, Drs. Shute and Pool; *Corresponding Secretary*, Dr. T. C. Smith; *Treasurer*, Dr. C. W. Franzoni; *Recording Secretary*, Dr. F. P. Morgan; *Librarian*, Dr. E. L. Morgan; *Board of Censors*, Drs. H. B. Deale, J. S. Wall, F. R. Hagner, J. F. Moran and D. Olin Leech.

An appropriation of \$41.00 was made to meet the expenses incurred in entertaining Dr. Adolph Lorenz while in Washington. The Treasurer stated that Dr. Adams, Dr. Magruder and several others had been very generous in aiding in the entertainment.

Dr. D. S. Lamb gave notice that at the stated meeting in July

he would bring up for action the following proposed amendment to the constitution and by-laws, namely: "That wherever it is now provided that the result of a vote shall be determined by a count of *members present* the phraseology shall be so changed as to provide that the result shall be determined by a count of the *votes cast*."

**Adjourned Stated Meeting, Wednesday, January 14.**—President, Dr. Geo. M. Kober, in the Chair; over 71 members present.

The application of Dr. Aubrey H. Staples for active membership was read and referred to the Board of Censors.

The report of the Librarian, Dr. E. L. Morgan, was read and referred to the Executive Committee for appropriate action. It recommended in substance that arrangements be made with the Librarian of the Carnegie Library of Washington to set apart a room for a working medical library, to which physicians should be encouraged to present such books, journals and pamphlets as they did not need for their own collections. This city library had the advantage of that of the Surgeon General's Office, that it was open in the evenings.

The stated meeting adjourned and the **regular meeting** began.

Dr. Magruder, Chairman of the Executive Committee, reported "that during the recess of the Society a bill was passed by the House of Representatives relative to the *Manufacture and Sale of Adulterated Foods and Drugs* which jeopardized the results of all of the work which the Society has done toward securing purity in the District of Columbia in foods and drugs, including milk, and that in view of that fact the Sub-Committee on Legislation submitted to the Hon. P. J. McCumber, Chairman of the Committee on Manufactures, which had the matter in charge, a protest against the enactment of such legislation. The Executive Committee asks that its action in this respect be confirmed and that it be authorized to take such further action as may be necessary to protect the interests of the District of Columbia in this matter.

"The Executive Committee reports further that it has communicated with the Hon. James T. McCleary, of the House of Representatives, Chairman of the Sub-Committee which has the District Appropriation bill in charge, urging the establishment of *Medical Inspection in Public Schools under the Supervision of the Health Department* as heretofore authorized by the Society. Members of the Society are requested to use whatever influence they may have, particularly at the present time, to accomplish this result." The report was adopted.

Dr. Woodward from the auditing committee on the accounts of the Treasurer reported them correct; the report was accepted.

The Chair announced the standing committees for 1903 as follows:

*Public Health.*—J. W. Chappell, Chairman; J. T. Cole, J. A.



Stoutenburg, G. W. Wood, Annie A. Wilson, L. Eliot, W. L. Robins.

*Essays.*—T. C. Smith, Chairman; M. Griffith, N. P. Barnes.

*Executive Committee.*—To serve one year: W. C. Woodward, D. P. Hickling, Z. T. Sowers. Two years: G. N. Acker, E. A. Balloch, J. W. Bovée. Three years: T. N. McLaughlin, W. B. French, G. Wythe Cook. Four years: W. G. Morgan, C. W. Richardson, G. L. Magruder. Five years: S. S. Adams, Wallace Neff, E. W. Reisinger.

*Special Committees.*—*Microscopy.*—J. B. Nichols, Chairman; Collins Marshall, D. W. Prentiss.

*Editing the Transactions.*—D. S. Lamb, Chairman; W. A. Wells, V. B. Jackson.

*Directory of Nurses.*—H. L. E. Johnson, Ada R. Thomas, T. S. D. Grasty.

Dr. Anderson said that at the recent meeting of the American Association for the Advancement of Science two motions were passed which were of importance to the medical profession, namely, that a memorial be erected to the memory of Dr. Reed, and that a medical officer be appointed on the Isthmian Canal Commission. He moved that the Society endorse these acts, and that notification thereof be sent to the proper persons. Carried.

The following cases and specimens were presented:

By Dr. Bowen: 1. Myomectomy at the end of the third month of pregnancy. 2. Hysteromyomectomy at the end of fifth month of pregnancy, performed during labor. See p. 9.

By Dr. Hickling: Hysterectomy for fibroids. See p. 7.

Dr. Stavely read the essay for the month: "Splenic Infection: with Report of Two Cases, one requiring Splenotomy and the other Splenectomy." Discussed by Drs. Nichols, I. S. Stone and Bovée. See p. 30.

**Wednesday, Jan. 21.**—The President, Dr. Geo. M. Kober, in the Chair; over 49 members present.

Dr. S. S. Adams was elected a Vice-President for the Washington Academy of Sciences for 1903.

The resignation of Dr. H. P. P. Thompson was accepted.

Dr. Vaughan exhibited a patient in connection with his paper on Intussusception.

The following cases and specimens were presented:

By Dr. Balloch: 1. Cancer of the male breast. 2. Cancer of caecum. Discussed by Dr. I. S. Stone. See pp. 8 and 12. 3. Fibroma of scrotum. Discussed by Dr. Neff. See p. 11.

Dr. Bowen's cases of Myomectomy and Hystero-myomectomy were discussed by Drs. I. S. Stone, Fry, Stavely, A. F. A. King, Heiberger and D. S. Lamb.

Dr. Vaughan read the paper of the evening. Subject, "Intussusception—Report of a case reduced by operation." Discussed

by Drs. Behrend, J. Ford Thompson, Fry, Neff, D. S. Lamb, Balloch, Truman Abbe, I. S. Stone, A. F. A. King and S. S. Adams. See p. 1.

**Wednesday, January 29.**—The President, Dr. Kober, in the Chair; over 46 members present.

An assessment of \$4 per member was made for the current year.

The Corresponding Secretary explained that Dr. Nichols had been appointed essayist for November, but instead would read the essay for January.

Dr. Shute was appointed essayist for November.

The following cases and specimens were presented:

By Dr. D. S. Lamb: 1. Fetus, 38 days old, showing the development at that age. Discussed by Dr. A. F. A. King. 2. Bony wall of cyst. 3. For Dr. Sillers: Perforating ulcer of the foot. Discussed by Drs. Sillers, Behrend and McLaughlin. See p. 15.

The Chairman of the Executive Committee reported "that Hon. A. B. Duvall, Corporation Counsel, has decided that under existing law the *Records of Births and Deaths* in the Health Department of this District are open to the public generally without any evidence being shown by the applicant for permission to inspect such records that he has any special interest in any matter which is or is likely to be contained therein. This decision, your committee is advised, grew out of an application of a representative of the manufacturer of a proprietary infant food for permission to take from the records of births, from time to time, the names and addresses of the parents of recently born children so as to forward to them advertisements concerning such food. Under the decision, however, every manufacturer of any article whatsoever is entitled to the same privilege. The result of this decision is, therefore, to put in jeopardy the comfort, health and life of each infant in this community.

"Your committee does not believe that such records were ever established for any such purpose, or that they should be made use of in this way, and recommends that the Executive Committee be authorized to do whatever it may deem necessary to check such use."

Dr. Magruder also stated that the Executive Committee had that day, before the Senate Committee on the District, protested against the adoption of a proposed amendment to the appropriation bill relating to the *Filtration Plant* which made possible the use of alum or other chemicals in filtering the Potomac water. As a result, he believed that the amendment would not be passed, and he had good reasons for believing that filtration by the slow-sand method was not jeopardized.

The Society voted to approve the action of the committee and authorized it to take further necessary action.

Dr. Nichols read the essay for the month: "Acute Leukaemia."

This essay had received honorable mention in the recent prize essay contest. Discussed by Drs. French, Shute, Lemon, S. S. Adams, Trumann Abbe, Behrend and Rebyburn.

**Wednesday, February 4.**—The President, Dr. George M. Kober, in the Chair; over 43 members present.

Dr. Nichols exhibited a sphygmomanometer, and demonstrated its use. Discussed by Drs. Woodward, Motter and A. F. A. King. See p. 19.

Dr. Belt read the paper of the evening: "Cataract Operation; with brief report of 65 cases." Discussed by Drs. Burnett, Newell, Shute and A. F. A. King. See p. 47.

**Wednesday, Feb. 11.**—The President, Dr. Geo. M. Kober, in the chair; over 42 members present.

Dr. D. S. Lamb, for the Editing Committee, reported that the last number of the ANNALS for 1902 had been issued, and the bill had been received, \$156.83. The Committee had used more than the \$600.00 authorized by the Society, but there were outstanding bills to the amount of \$184.00 for advertisements. When this sum should be received the Committee would be able to meet this bill and have besides a balance to its credit. He asked that the Committee be authorized to pay the bill with the understanding that the Society should be reimbursed when payment for the advertisements should have been received. Motion carried.

Dr. Magruder, for the Executive Committee, read a bill in regard to reporting *minor contagious diseases*, and stated that the Health Officer was anxious that it should be passed at once, and he asked for instructions as to what his Committee should do in the matter. Dr. French moved to refer it to the Executive Committee, with instructions to take whatever steps the Committee deemed best. After discussion by Drs. D. S. Lamb, Franzoni, T. C. Smith, French, Hooe, Chappell, S. S. Adams, Kleinschmidt and E. L. Morgan, the motion was carried.

Dr. Magruder also reported that the Senate Committee on the District of Columbia had provided for 12 *Medical Inspectors* for the *Public Schools* at a salary of \$500.00 each per year. There were to be four colored inspectors. All the recommendations of the Medical Society had been carried out.

The proposition to filter the Potomac water in any other way than by the slow sand method had been finally defeated.

Dr. Bermann exhibited a new apparatus for giving inhalations of ammonium chloride. Discussed by Drs. A. F. A. King, Magruder, Chappell and J. P. Miller.

Dr. D. S. Lamb presented a case and specimen: Gas-bacilli cysts of the liver.

Dr. Dufour read the paper of the evening, "Pathological Conditions of the Temporal Bone and their Sequelae." Discussed by Drs. McKimmie and Dye. See p. 21.



## Medical Miscellany.

### Disinfection.—Central Dispensary and Emergency Hospital.

—The recently issued report of this institution for 1902 shows a greatly increased amount of work over the previous year.

A summary is as follows :

Dispensary Department :

<i>New cases.</i>	<i>Revisits.</i>	<i>Operations.</i>
7,211	23,445	739

Emergency Department :

5,235	4,282	1,921
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Total	12,446	27,727	2,660
Grand total of visits,			40,173
Number of cases treated in the wards,			827
Ambulance runs,			1,785
Prescriptions compounded,			35,204
Deaths,			68
Autopsies,			8

For the last several weeks a series of experiments have been carried on by Dr. Le Merle, Assistant in the Lionel Laboratory, for the purpose of determining the best methods for the disinfection of rooms. The use of the formalin generator as ordinarily employed was found to be unreliable and unsatisfactory. Pus exposed in the rooms in which this method was employed showed prompt growth in the culture tubes. The method, recommended by the Health Department, of exposing sheets saturated with formalin in tightly closed rooms for 12 hours, was tried. When the strength, suggested by the Health Department, of 500 c. c. of formalin to 1,000 cubic feet of space, was used the exposed germs were found in every case to have been killed, the culture tubes being as clear as the original culture medium. It was also found that in this strength it was effective through several layers of gauze and, in one or two instances, through a manilla envelope, but not uniformly so. The germs, however, were killed when concealed under four folds of an ordinary blanket. It appears that it is not so much the length of time of the exposure as the intensity of the fumes that is efficient.—SWAN M. BURNETT.

**Freedmen's Hospital.**—The Sundry Civil Bill passed by the last Congress authorizes the Secretary of the Interior to contract for a building for this institution, to cost \$300,000. Thus, after many years of waiting, this hospital will have facilities adequate to the performance of the important work entrusted to its care. The building is to be modern in every respect and \$50,000 will be expended during the coming year.—EDWARD A. BALLOCH.

**Epithelioma in Trout.**—**U. S. Fish Commission.**—Certain tumor-like swellings involving the gills of trout have been reported during the past year from the Government hatcheries of New Zealand; diagnosed from microscopical examination as epitheliomata. The species concerned are the Atlantic salmon, American brook trout, Loch Leven trout and rainbow trout. The affection has not been noticed in fish under three years of age. The tumor is said to start, in the rainbows examined, at the apex of the second branchial arch, and reaches the size of a walnut, the distension causing malposition and partial obliteration of the branchiae, while the tumor may protrude externally. It is at present known only among domesticated fish and affects but a small per cent. of these; is therefore not a very serious enemy to fish culture.

In this country a tumor of the same region, chiefly in brook trout, is known to fish culturists as an occasional occurrence. It, however, affects yearlings as well as older fish. It has not been definitely classified by its structure as a true neoplasm, but its resemblance to the described New Zealand cases makes it probable that it is of similar nature. In addition these American instances have a suggestion of malignancy in the very marked anemia of the affected trout.—**M. C. MARSH.**

**Georgetown University Hospital and Medical School.**—The annual report of the hospital for 1902, just published, shows 410 indoor patients treated—190 medical, 181 surgical and 39 gynecological. Number of surgical operations, 101; gynecological, 24. In addition to the house cases, 1,169 patients were treated in the emergency service. Dispensary service as follows:

	<i>New cases. Revisits.</i>	
Surgical service, . . .	707	2,251
Medical service, . . .	455	837
Gynecological service, . . .	81	193
Eye and Ear service, . . .	69	193
	<hr/> 1,312	<hr/> 3,474

Active building operations have begun for the extension of the hospital; this will consist of a wing on the east side of the present administration, 30 x 90 feet, four stories and a basement in height. The basement will be occupied by the dispensary department, waiting room, drug room, pathological laboratory, five clinical rooms and a mortuary; and the first, second, third and fourth floors will be fitted up for public wards and rooms for private patients. The present building accommodates 50 patients, and when the new wing is completed the hospital will accommodate over 100. The hospital now occupies 230 feet frontage on N street by 126 feet on 35th. The receipts for the year were \$9,354.78 from private patients and \$3,737.48 from donations.

In the School of Medicine Dr. John W. Ross, U. S. Navy, has just completed a course of lectures on tropical diseases. Dr. Edward L. Keyes, of New York, delivered a course of lectures on genito-urinary diseases. Dr. Wm. C. Gorgas, Colonel and Assistant Surgeon U. S. Army, also gave a special lecture on his observations at the International Medical Congress held in Egypt, and his work in yellow fever at Havana, Cuba.—GEO. M. KOBER.

**Health Office, District of Columbia.**—It is impossible at present to give an accurate statement in detail of the mortality in the District during January, February and March of the current year. There were, however, approximately 1,708 deaths from all causes, representing an increase of 263 over those reported during the corresponding period of 1902. This increase was chiefly due to pneumonia and consumption. Deaths from pneumonia increased from 245 to 282, and from consumption from 167 to 230. The prevalence of grippe, whooping cough and measles is probably responsible, in part at least, for this increased mortality and it is not unlikely that the scarcity of fuel has also contributed to it. It should be added that this mortality from pneumonia includes all forms of the disease and not simply the acute lobar variety.

There was a marked decrease in cases of *typhoid fever* as compared with reports for the preceding six months. At the beginning of the year there were 235 cases of the fever under treatment. During the quarter 164 cases were reported. Of the entire number of cases to be accounted for, 295 recovered, 21 died, and 83 remained under treatment at the close of the quarter. The disease has been unduly prevalent among whites, 135 cases having been reported, with but 29 among the colored. The mortality among the latter was however much heavier, indicating possibly that the milder cases among our colored population escaped observation. Of the 135 white patients 12 died and 9 of the 29 colored cases. A certain number of each class remain, of course, under treatment with a liability to further fatalities. Of 547 cases of the fever reported during October, November and December, 1902, 67 have died. This represents a case mortality of 12.2 per cent. and may be regarded as indicating fairly well the severity of the disease as it prevailed during that period.

Cases of *diphtheria* and *scarlet fever* have been comparatively rare during the past winter, and during the quarter there was a steady decrease in the number under treatment. At the beginning of the quarter 20 cases of diphtheria were in quarantine, and during the 3 months 40 were reported. Fifty-three recovered, 5 died and 2 were under treatment at the close of the quarter. January 1st, 21 cases of scarlet fever were under treatment and during the quarter 34 new cases were reported; 46 recovered, there were no deaths and 9 remained under treatment at the close of the quarter.

*Smallpox* has been more than usually prevalent and more severe



than during recent years. The year began with two cases in hospital, and during the first quarter 24 new patients were admitted; 18 recovered and 2 died; 6 were in hospital March 31. It is interesting to note that no attempt had ever been made to vaccinate 9 of the patients, while unsuccessful attempts at vaccination had been made in 11 other cases. Of the remaining 6, who had been vaccinated, in none had the operation been performed during the 8 years preceding the attack.—W. C WOODWARD.



# WASHINGTON MEDICAL ANNALS

## THE ABUSES AND USES OF VENESECTION IN THE PRACTICE OF MEDICINE.\*

By ROBERT REYBURN, A. M., M. D.,

Washington, D. C.

Though for centuries venesection was considered one of the most valuable methods to be employed in the cure of disease, it has now fallen entirely out of use.

The present generation of physicians indeed has seen so little of the practice of bloodletting as a therapeutic agent that it is hard to realize how universally it was used even as late as the middle of the last century.

At the time the writer commenced the study of medicine (about fifty years ago) the favorite text-book used by medical students was Watson's Practice of Medicine. It was indeed a charming book, and one that for beauty, style and literary diction could not be surpassed. It was, however, in some respects a most discouraging book.

He would give the most vivid pictures of the symptoms and progress of diseases, and yet when it came to treatment all were apparently treated in nearly the same way. His favorite method for curing nearly every inflammatory disease was practically limited to the administration of calomel, or other purgative, and the free use of bleeding and blistering.

As I read the book I used to ask myself, Is it possible that our means of treating the physical ills of our patients are limited to the use of the above three methods? and it seemed to me that if such was the case then the practice of medicine was a delusion and a failure.

Fortunately about that time (1853) I procured a copy of J.

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\* Read before the Medical Society of the District of Columbia, February 25, 1903.



Hughes Bennett's great work on clinical medicine, and received from that book a light on my studies in the science of medicine that I never had before.

Dr. Bennett was a great clinical teacher and reasoner, and while he used bloodletting in a moderate degree, he combined with it the liberal use of nourishing diet and stimulants.

Like the immortal Graves, he was far ahead of his time. Graves was the man who, when all the physicians of his time were bleeding and starving their fever patients, dared to feed liberally those under his care. He asked that when he died they should carve on his tombstone, "Here lies the man who fed fevers."

The picture given by Le Sage, in his immortal book, *Gil Blas*, of the character of Dr. Sangrado, probably aided largely in calling attention to the absurdity and harmfulness of the free bloodletting, so much used by the physicians of that day. In *Gil Blas* there is one exquisite piece of satire that I must quote. During a time of great sickness and mortality the notary was sent for to make the will of a sick man. He immediately asked the question, "Who is the attending physician?" On being informed that it was Dr. Sangrado, he at once said that they must hurry and lose no time, for if they did not there would be no opportunity to make the will.

Physicians of that day seemed to regard the inflammation of an organ as a monster that had taken possession of the part and could be destroyed by the abstraction of blood from the veins, or by blistering and the administration of mercurials.

The more accurate knowledge of our own day (though still incomplete) has shown us that most if not all the phenomena manifested in the course of acute inflammations are due to the efforts of the organism to defend itself against the inroads of micro-organisms, or the toxins produced by them. We know now also that no inflammatory disease can be suddenly cut short by any method of treatment, but that we can guide it to a favorable termination.

Admitting, therefore, the utter failure of venesection as a means of cutting short or curing acute inflammations, the question arises, Were our ancestors in the practice of medicine entirely mistaken in their use of this now almost forgotten remedial agent?

We should remember that this method of practice was employed by many of the brightest lights of our profession. The physi-

cians of former times were just as acute observers of disease as those of the present day.

Have we then not lost something of value to our science in our entire abandonment of venesection? Are there not cases even now that would be benefited by bloodletting, and in utterly abjuring it have we not gone from one extreme to another?

Arthur Helps, the great English essayist, says that when a man attempts to avoid error on one side he is very apt to fall into the opposite error. The pendulum of truth is apt to vibrate from the error on this to that on the opposing side.

There are now many members of our profession who believe that while the idea of cutting short an acute inflammation by bloodletting is an absurdity, yet in certain diseases venesection is a valuable therapeutic measure, and in some cases is absolutely necessary to preserve the life of the patient.

The cases benefited by the abstraction of blood are chiefly those in which there is an abnormal blood pressure which endangers the rupture of a blood vessel in the brain or causes a stasis of blood in some vital organ.

Let me give an illustrative case. Mrs. G., age 56, was placed under my care a few months ago, because of the following symptoms: a feeling of numbness of the right side of the body, involving both upper and lower extremities, and persistent headache, more marked on the left side. The headache increased in severity, she felt very giddy on attempting to walk, and then her speech became affected and articulation imperfect. She was a stout, plethoric woman, weighing 170 or 180 pounds, who had always enjoyed good health. She had always lived on a farm, and had usually worked a good deal in the open air, but, for about a year before I saw her, she had changed her occupation to indoor work, employed in taking care of an invalid lady, and had remained a great deal indoors, very rarely leaving the house. She had generally enjoyed her food and had usually eaten a liberal supply of meat and nourishing food, and no doubt had partaken of more than her system needed.

Here was a plain case of threatened *cerebral apoplexy*, and she became very much alarmed (and with reason) as to her condition. She was a woman past the menopause, and had not the relief that menstruation might have given to the over-filled blood vessels. She was suffering from a hyperemia with threatened fatal result,

on account of the degeneration of the cerebral blood-vessels which to a greater or less degree must be expected at her age. Now, would any physician hesitate to bleed in such a case? The proper treatment in such a case is to bleed freely from the arm, twelve or sixteen ounces of blood, and follow this by brisk purging with saline purgatives, and low diet. Such a case can be brought (as was this one) from the jaws of death, by the proper treatment, as outlined above.

Another disease in which bleeding is sometimes necessary to prevent death is acute or croupous pneumonia. *Acute pneumonia*, in its great fatality in our day, is a standing disgrace to the practice of medicine. There can be no question that it is worse treated, and the percentage of mortality from it greater, than it was thirty or forty years ago. This is admitted by all modern writers on the subject, and it will only be necessary here to give a few references to prove the statement.

The Nestor of American Medicine, Dr. N. S. Davis (*Journ. Amer. Med. Ass.*, June 6, 1898, p. 1113), says "the mortality in pneumonia has increased during the past 45 years."

The *Medical News*, Philadelphia, March 6, 1897, says that the mortality from pneumonia has increased during the past 50 years. In New York City, out of the 41,000 deaths in 1896, 5,383, or nearly one-eighth, died of pneumonia. The mortality from pneumonia in the New York City Hospital during the period beginning 1834 and ending 1843 was 25.4 per cent., during 1844 to 1853, 25.7 per cent., 1854 to 1863, 26.8 per cent., 1864 to 1870, 27.7 per cent., 1877 to 1886, 33.8 per cent., 1887 to 1895, 34.7 per cent.

Dr. Putnam of Boston (*Charlotte Medical Journal*, North Carolina, September, 1898, p. 299), says that the mortality from pneumonia has increased 50 per cent. during the past 30 years.

*American Medicine*, May 18, 1901, p. 277, says pneumonia is more fatal than tuberculosis. In New York City from 1890 to 1900 there were 56,092 deaths from pneumonia, and 50,490 during the same period from tuberculosis. In Chicago during the same period there were 25,228 deaths from pneumonia and 22,957 deaths from tuberculosis.

The following extract is taken from the *Journ. Amer. Med. Association*, January 24, 1903: "The Increasing Pneumonia Mor-



tality.—Nearly three years ago we called attention to the fact that statistics showed that pneumonia was causing more deaths than tuberculosis. We believe that we were the first to call attention to this fact, but it is becoming generally recognized.” The circular issued by the Health Department of Chicago for the week ending January 17, 1903, begins with the statement: “Since the census year, 1900, pneumonia has claimed more than one-eighth of all the victims of the Grisly Reaper in Chicago, one-third more than consumption and 16 per cent. more than all other contagious and infectious diseases combined, including diphtheria, erysipelas, influenza, measles, puerperal fever, scarlet fever, smallpox, typhoid fever and whooping cough, the total of which deaths was 4,489 as compared with a total of 6,562 deaths from pneumonia.” This statement is a striking one, and certainly confirms our earlier assertions as to the predominance of pneumonia over other infectious diseases as a cause of mortality.

*American Medicine*, January 31, 1903, says, concerning the mortality in Chicago: “During the first 17 days of January, 1903, more than one-fifth of all deaths were due to pneumonia. The deaths from tuberculosis in Chicago in 1860 were 25.28 per 10,000 (276 deaths in 109,206 population). In 1900 they were 15.3 per 10,000 (2,599 deaths in 1,698,575 population), a decrease of nearly 40 per cent. (39.1) of tuberculosis mortality in the forty years. From pneumonia the 48 deaths in 1860 represent a rate of 4.4 per 10,000 of the population; in 1900 the 3,389 deaths represent a rate of 9.95 per 10,000, an increase of more than 35 per cent. (35.75) of pneumonia mortality. The whole country shows a decrease of 20.7 per cent. of deaths from tuberculosis and an increase of 7.4 per cent. of deaths from pneumonia during the forty years.”

What is the cause of this increase of mortality among the patients suffering from pneumonia in our time? Probably one important factor in the increased fatality in large cities is the class of patients treated in the city hospitals. Many of these are hard drinkers, and the mortality among such persons is always very large. Another factor that has been dwelt upon and has undoubtedly swelled the average mortality has been the advent of acute epidemic influenza (commonly called *la grippe*).

Many other causes might be adduced to explain the failure of our art in curing this disease, and the interesting query comes up

whether our change of treatment, and abandonment of bloodletting has not been a factor in producing this discouraging result.

Let me describe a class of cases of acute pneumonia in which bloodletting is not only advisable, but absolutely necessary to save the life of the patient. We will suppose, for instance, the case of a young man in vigorous health, a hearty eater, fullblooded and one who perhaps, while not a habitual drinker, yet loves the good things of this life, not wisely but too well. Such a young man is attacked with acute pneumonia, and in three, four, five or six days, perhaps, we see crape on his door, and are shocked to hear that he is dead. What is the cause of such a young man's death? In the process of inflammation which occurs, perhaps one-third, one-half or even two-thirds of the lung tissue of our patient is filled up with a glutinous lymph which plugs up every air vesicle, and thus prevents almost entirely the access of air in all the smaller bronchi. If we cut into such a lung in the post mortem room we find it solid. We drop it into water, and it sinks like a piece of liver or other solid organ.

Now, what is the condition of this man's circulation? The heart which perhaps beats normally at 65 or 70 is now beating 100, 110 or even 120, 140 or 150 per minute. Our patient's face and lips are perhaps cyanosed, his respirations are 30, 40 or even 50 per minute. He lies quiet and says but little, for his breath is too precious to be wasted in words, but with imploring eyes he looks to us for help. Bleed such a patient at once, and we will probably save his life. What harm can we possibly do to him by bleeding? The loss of blood is nothing to him; he has too much of it in his body for his present needs. In other words, here is an inflamed lung, the aerating surface of which is diminished to one-half or one-third or even one-fourth of its normal capacity. The heart at the same time is pumping the blood, with greater force and frequency than in health, into the semi-solid lung. How does this patient die? Simply because there is not sufficient oxygen brought to the lungs to properly purify the impure venous blood and convert it into the life-giving arterial blood. The heart works harder and harder to perform the impossible task assigned to it, but gradually fails in power, and death speedily ensues.

In a case like this if we take a pint or a pint and a half of blood from the arm we accomplish two things: First, we take away the surplus of blood which is overfilling and engorging the blood-

vessels of the lungs ; and, secondly, we diminish the force and frequency of the heart's action, which is sending to the inflamed lung far more venous blood than it can purify. The objection may be made that our patient may be unable to spare such a large quantity of blood, from the drain thereby made on his vitality ; if so, the remedy is easy. At the same time that we bleed him, or immediately thereafter, inject by hypodermoclysis under the skin of the thorax or abdomen just the same quantity of normal salt solution (one to one thousand) as we take fluid from him by bleeding.

Bleeding in *puerperal eclampsia*. The indisputable fact that puerperal eclampsia occurs most frequently in primipara and in the prime of life would seem to indicate clearly that it must be caused by a toxemia resulting from deficient metabolism and retention of effete and waste products in the body. What is the cause of this toxemia ? How can it be remedied ? We are strongly convinced that the cause is very simple and obvious, and that this disease is due to the non-assimilation of the large amount of meat and other nitrogenous food consumed by the majority of pregnant women. After the initial stage of nausea and vomiting, to which many women are subject during the early months of pregnancy, has passed, the appetite is apt to become abnormally keen. Patients are encouraged by their friends to gratify this abnormal appetite, and even if it should fail they are urged to eat largely, it being a popular superstition that it is necessary for them to do so in order to properly nourish themselves and their unborn offspring.

Another most reprehensible practice is that of physicians prescribing alcoholic drinks of various kinds at meal times for the purpose of stimulating the flagging appetites of pregnant women. Harm is done the women by this practice in two ways : first, by inducing them to partake of more food than they require ; and second, alcoholic drinks (beer, wine, etc.) diminish metabolism and encourage the retention of effete matters in the body.

Two other factors entering into the causation of this disease are the neglect to take sufficient exercise in the open air, and neglect to keep the skin in healthy condition by frequent bathing and brisk friction.

If the foregoing views are correct, and the chief causes of puerperal eclampsia are improper diet and want of hygiene, the ques-



tion arises, How can the disease be prevented? It is my firm conviction (based on 47 years of continuous practice) that many of these cases can be prevented, and, of course, preventive treatment is far more important and more successful than the remedial.

The following case is an illustration of preventive treatment: Mrs. M. R., age 22, of healthy physique, always had excellent health. She engaged me December 10, 1901, to attend her in her first confinement. At that time she was eight months pregnant. She was to go to Columbia Hospital for Women, which she entered December 31. She complained of severe and continuous headaches, with sparks of fire before her eyes and some vertigo. Her urine was examined and showed the presence of albumin and tube-casts and a great deficiency in urea; it averaged only three to four grains per fluid ounce. She was immediately placed on a rigorous diet, and not allowed to take more than one-third her usual allowance of food. Meat and stimulants were absolutely interdicted, and she was given thin soups and a small amount of milk and farinaceous food. For medication she was given broken doses of calomel, followed by mild saline cathartics, so as to secure two or three loose movements of the bowels per day. She was also given a mixture of citrate of potash with a small proportion of potassium bromid. Under this treatment she gradually improved, and the amount of excreted urea gradually increased, though it never came up to the normal. She was carefully watched, and, greatly to my relief, symptoms of labor set in January 10, 1902. Her confinement and convalescence were normal and uneventful.

The above preventive treatment, however, has a much wider field in the earlier months of uterogestation. The urine of every pregnant woman should be systematically examined at least once a month until the end of the term. If albumin is found (especially if accompanied by deficient excretion of urea) it shows that the elimination of waste material is abnormally lessened; purgatives and diuretics should be given. Hydrotherapy, with diminution of or total abstinence from nitrogenous food and alcohol, are also powerful adjuncts in the treatment of these patients.

But there may be no opportunity for preventive treatment, for the patient may be already in a state of coma or in the throes of puerperal convulsions when we first see her. This is an emergency that will tax to the utmost the skill and self-reliance of the most accomplished physician. What shall we do? Shall we pro-

ceed to empty the uterus, bleed, give inhalations of chloroform or use morphia? In regard to the first-mentioned treatment, all authorities practically agree that if the convulsions develop during labor at full term, delivery should be accomplished either by version, the application of forceps or other means, as rapidly as possible. This rapid delivery of the child will very often arrest the convulsions, or, if it does not entirely, will so mitigate them as to render the case comparatively easy of treatment.

This, however, is not invariably the case, for in one of the severest cases of puerperal eclampsia ever met with in my experience convulsions began after the labor had satisfactorily terminated. The labor had not been unusually severe for a primipara, but there was a smaller flow of blood than usual from the uterus during and after labor. She was a vigorous, healthy young woman, plethoric and with full, tense pulse. The convulsions continued for 24 hours subsequent to the termination of labor, in spite of the free use of inhalations of chloroform, and administration of chloral and morphia combined with bromides. The attending physician and myself becoming almost desperate, we finally determined to bleed her. By the dim light of a candle we bled her from the arm to the amount of 20 ounces, and there was almost instantaneous relief. The convulsions stopped at once and she made an uneventful recovery. We felt satisfied from the full and hard character of her pulse that the convulsions were continued by the blood pressure on the cerebral centers, and the result seemed to confirm this view of the case.

No one at the present day would wish to revive the old Sangrado system of indiscriminate bleeding for every disease, but it is the firm conviction of many physicians, of whom I am one, that we have been too hasty in abandoning the use of blood-letting. The field of usefulness of bleeding, however, is very limited, and it is only in cases like those above described that we would recommend it.

#### DISCUSSION.

**Dr. T. C. Smith** said that if there was any one thing in which the medical profession was consistent it was in its inconsistency. Men advocated bloodletting, but did not practice it. How many of those present had done it in the last ten years? The practice was now obsolete and would never again become popular. Even the *leaders* of the profession were inconsistent: Osler said recently

that the profession had learned from the homeopaths to do away with venesection ; and yet in his textbook he recommended bloodletting in certain cases of pneumonia. He reported 12 cases in the hospital in which bloodletting was practiced, and only one recovered. Surely not a very encouraging outlook. Let the physician who advocated venesection practice it. At an early day he hoped to hear from Dr. Reyburn a report showing the beneficial effects of bloodletting in some of his cases.

**Dr. C. W. Brown** said that he had used the method ever since he began to practice because he had always believed that certain cases demanded it. Although the first six patients whom he bled died, he persisted, and by so doing had saved several lives. He did not use it in pneumonia, but had successfully employed it in other conditions ; had done so in eclampsia, and all the patients recovered. He did not believe, however, that bleeding was indicated in every case of eclampsia ; only in plethoric patients having a hard, full pulse. In apoplexy, also, it had saved many lives. He related a case of this kind in a man who was seized on the street ; he was carried unconscious into a nearby hotel ; finding the pulse full and hard, and the man of plethoric habit, Dr. Brown removed 3 pints of blood ; when 2 pints had escaped an improvement was noted, and he became conscious an hour later ; the convulsive movements ceased almost immediately ; venesection, in his opinion, saved this patient's life. He related another similar case : the patient was so much impressed with the beneficial effects of venesection that he used to return to Dr. Brown every six months to be bled as a prophylactic measure ; he did this for years. Finally, however, he fell into the hands of a physician who discouraged the practice, and soon afterward the man was seized with an attack of apoplexy and died.

**Dr. Castelli** congratulated Dr. Reyburn on seeking to revive a useful therapeutic measure. The reason it had become obsolete was that it was improperly used. The method originated with an Italian physician (Rasori), hence it was natural that Italians should wish to revive it. The indications for its use should first be understood. It was useful in the infectious diseases : it relieved the body of the toxins which produced a deleterious action on the ganglions of the heart. It had proved most useful in oedema of the lungs and, lately, in acute nephritis. When rationally used, venesection was one of the most useful therapeutic measures at our disposal, but the question when and how to use it must be first decided. It was useful in some cases of pneumonia, and useless or even harmful in others, *e. g.*, when complicated by gout.

About five years ago he had advocated venesection in chlorosis, anemia and leukemia ; it had a tonic effect on haematopoiesis. The injection of arsenic was beneficial in leukemia, but venesection acted just as well. He had tried bloodletting in anemia, but



with no especial result; the removal of 50 cc. of blood each week, while using arsenic and iron, should have a marked tonic effect on the haematopoietic organs. He believed that venesection would soon again come into general use.

**Dr. S. S. Adams** said that, like Dr. Reyburn, he had been amazed at the article in the *Jour. Am. Med. Ass.* Pneumonia was the opprobrium of American medicine. The statistics published were possibly inaccurate; they might have been gathered from Health Office reports. Statistics from that source relative to pneumonia were particularly inaccurate, owing to the fact that some insurance companies refused to pay if the diagnosis of tuberculosis was mentioned in the death certificate, and physicians were often tempted to help out the patient's family by assigning the death to pneumonia. A comparison of the mortality from pneumonia now with that of 30 years ago showed that we were better able to recognize and treat the disease now than formerly. This was largely due to our modern methods of clinical instruction.

A differential diagnosis between croupous and catarrhal pneumonia should always be made. As a matter of fact, a majority of patients over 50 years old who died from pneumonia died from the latter form, and this was a source of inaccuracy in the statistics referred to. It was a question how much could be gained by venesection in pneumonia; it relieved the pressure for a time, but the ingestion of water soon filled the vessels as before. It could not alter the consolidation of the lung; no blood could enter on account of the exudate. Nor did venesection reduce the work of the heart; diminishing the volume of blood in the vessels did not do this. The fact was that croupous pneumonia was an infectious disease which had a certain course to run; the process was largely one of endurance; the heart gradually became used to the increased resistance; not until the sixth day did it begin to feel the *vis-a-fronte*. In many cases, particularly after the age of 60, the patients died *after* crisis had occurred. He had had no practical experience with venesection in pneumonia, but if he could be convinced of its value on physical or physiological grounds he would try it.

As to the mortality, how large a mortality had each of us? That was the surest way to get at it. He did not believe that more patients died of pneumonia than of tuberculosis, as was stated in the editorial.

**Dr. Woodward** said that the proper compilation and interpretation of statistics required special training. Without such training erroneous conclusions were apt to be drawn. In considering the figures which had been referred to it was necessary to bear in mind that the word "mortality," indicating apparently in the present case "death rate," had two meanings. As used by some, it meant the number of deaths which occurred in a given population. As used by others, it meant the number of deaths which

occurred among a given number of patients suffering from a specified disease. It was necessary, therefore, to know in which sense the word was used before undertaking to interpret the figures to which it referred. Figures which had recently been published to show that the mortality from pneumonia exceeded that from tuberculosis had had reference to the number of deaths from pneumonia and tuberculosis occurring in a given population, and not to the number of deaths from these diseases occurring among a certain number of patients suffering from such diseases. No effort had been made, so far as he knew, to show that the percentage of deaths among persons suffering from pneumonia was larger than among persons suffering from tuberculosis. Published figures, therefore, might have reflected on the ability of the profession to prevent pneumonia, but hardly on its ability to treat the disease. Even in this connection, however, attention must be given to the varieties of pneumonia and to the causes of the disease, among which "grippe" held a prominent place.

In a case of pneumonia when, by reason of consolidation of lung tissue, the carrying capacity of the pulmonary vessels had been diminished, while the amount of blood delivered from the systemic circulation was not diminished, it might be possible that venesection would temporarily at least improve the condition of the patient. The operation would for a while diminish the amount of blood which found its way into the right auricle, and to that extent and for a more or less limited time relieve the overtaxed heart. To what extent, however, the withdrawal of blood with its contained oxygen-carriers, the red corpuscles, would diminish dyspnea was a different question. In convulsions, however, due to uremic poisoning, where the prime factor was or was supposed to be the quality of the blood rather than its quantity, it was difficult to see how benefit would result from bleeding unless it were followed up by dilution of the blood by a neutral fluid through hypodermoclysis, and even in such cases it might be questioned whether the hypodermoclysis was not a more valuable factor in the treatment than the withdrawal of blood.

**Dr. E. L. Morgan** said that the objections which had so far been raised against venesection did not hold good. The testimony of those who had not used it weighed but little against the statements of those who had, and those who had the most experience with it testified to its efficacy. In selected cases it was a valuable therapeutic measure. He mentioned cases of eclampsia and other affections in which it had saved life.

**Dr. McCormick** related his experience with bleeding. A plethoric man came to him for venesection, but he refused to bleed him. Another physician granted his request, however, and in about a week the man returned to Dr. McCormick with a large burrowing abscess of the arm, the wound having become infected from a faulty operation. Bleeding was practiced among the In-

dians, as the early records of Spanish explorers proved. The incision was made with a stone knife. It used to be the custom in the South to bleed all the slaves every spring until they fainted from loss of blood. All this, happily, had been done away with, routine bleeding being no longer fashionable. He did not believe in the practice, as a general rule, and thought that it was particularly contraindicated in croupous pneumonia. Overcrowding of the population in our cities, and the deficient ventilation of apartments by steam and hot-air heating were responsible in great measure for the greater number of cases of pneumonia now-a-days. He did not believe, however, that the actual percentage of mortality was any greater than formerly, nor were the relative number of cases greater. The results of treatment were better now than ever before.

**Dr. Forsythe** had seen four instances of bleeding in the last two years. 1. A plethoric woman, who suffered much with shortness of breath, hot flashes, etc., was accustomed to being bled every spring. He bled her once, and in three months she returned to have the operation repeated. 2. A motorman, very plethoric, had a "rush of blood to the head," shortness of breath, etc. He was bled by Dr. Forsythe, and said that he had never experienced such speedy relief. 3. A case of apoplexy occurring in church; patient was unconscious and hemiplegic. He bled her, and the next morning she was conscious, and made a good recovery.

**Dr. E. L. Morgan** related an instance in which a hard drinker's life was saved by bleeding.

**Dr. R. S. Lamb** inquired as to the object of bleeding; what was to be gained? Was it done simply to dilute the toxins? If so, hypodermoclysis answered the purpose just as well and was preferable in every way. In the last six months he had treated five cases of pneumonia; four recovered, and only one died, namely, from pneumonia following typhoid fever. He used hypodermoclysis; it was just as efficient as venesection.

**Dr. Gibson** advocated bleeding in certain cases. He related his experience with it in a case of pneumonia. The patient was a man 40 years old, whom he was advised to bleed by an older practitioner in whom he had confidence. The man was cyanosed, his pulse 140, temperature 105.4. He was bled freely and made a good recovery. Whether the happy outcome was the result of venesection was of course unknown, but Dr. Gibson believed that it saved the patient's life. He usually relied on applications of ice:

**Dr. Acker** said that he became interested in venesection in 1875 after hearing Prof. Hardy in Paris report a great variety and number of cases in which it had saved life. He had never seen a case of pneumonia or eclampsia in which he believed that venesection was indicated. He did not see how it could be con-



sidered a rational measure when the same result could be brought about by other and simpler means. It was obsolete because its effects were harmful. The patients should be supported. There was a possibility that it might be useful in a few selected cases.

**Dr. Ross** had performed venesection 20 times, and the more he did it the more he believed in it. He had become interested in it long ago by the arguments and illustrations of a Vienna physician. He had used it almost entirely in eclampsia. His rule in such cases was to take all the blood the patient could spare. This was done, of course, before delivery, and the uterus was immediately emptied. He had favorable results in 12 out of 15 cases; all but one of his patients recovered. In the fatal case the patient was moribund when he arrived; but he bled her and extracted the child; the case was one of advanced Bright's disease. He had this practice carried out as routine practice at Pensacola, and all eclampsia patients but one recovered.

Why did we bleed? Why give quinine in malaria? We knew it killed the germ, but we did not know how. He believed that bleeding rid the blood of deleterious substances. It was particularly beneficial when the heart was weak and dilated—where it was too weak to overcome the inertia of the blood. It was also useful in acute pleurisy with severe pain.

**Dr. Reyburn**, in closing, said that there was no question that venesection was unpopular at the present time; it was, nevertheless, capable of doing much good. This was well illustrated by a threatening rupture of a cerebral bloodvessel; bleeding reduced the blood pressure, and gave time for depletion by purgatives and other measures; and a small hemorrhage would cease spontaneously because of the diminution in blood pressure. As to pneumonia, statistics all showed that the *proportionate* number of deaths from this cause had increased of late years. He had never regretted having bled a patient, and thought it an admirable measure in certain cases of pneumonia and other affections. To be most effective it must be done early; the earlier the better.

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## CASE OF DENTIGEROUS CYST.\*

By R. M. SLAUGHTER, M. D.

Alexandria, Va.

Dr. D. S. Lamb presented the specimen, with the following history:

M. N., a strong and robust colored woman, age 21, had a left lower tooth extracted in 1895, after which a cyst developed in that side of the jaw; it steadily enlarged, and when seen in 1896

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\* Reported with specimen to the Medical Society of the District of Columbia, February 18, 1903.

was one inch in diameter. It was cut away and the site cauterized, but rapidly reformed, and was then excised and curetted at the Emergency Hospital, Washington. It promptly reformed again, and in Sept., 1897, Dr. Slaughter excised the left side of the body of the lower jaw at the City Hospital, Alexandria. She recovered and has remained well, and has fairly good use of the remainder of the jaw.

Sarcoma had been suspected. The cyst contents resembled coagulated mucus.

#### DISCUSSION.

**Dr. McCormick** said that he had seen two such cysts. One was at Johns Hopkins Hospital in 1892; the patient had been referred to the Hospital by a dentist; the history was similar to that in the case presented by Dr. Lamb; an erroneous diagnosis of osteo-sarcoma was made, and the mistake was not discovered until after operation had been performed for its removal. He saw the second case at Mobile, Ala. It was also treated as a case of osteo-sarcoma. The cyst was as large as an orange and had not the soft parchment-like feel of Dr. Lamb's specimen. The external wall was intact.

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### CASE OF UTERINE FIBROIDS REMOVED BY OPERATION.\*

By J. TABER JOHNSON, A. M., M. D., PH. D.,

Washington, D. C.

Mrs. G., colored, age 35, married three years, never pregnant. First noticed this tumor two years ago. She had the usual symptoms of fibroid tumor of the uterus, namely, pressure and hemorrhage. These symptoms increased in intensity and variety as the tumor increased in size, until she was unable longer to work for her living, and about one month ago she was admitted to the Freedmen's Hospital for treatment. I was requested to see her two weeks ago and perform whatever operation seemed necessary for her relief. On the following Saturday I removed these tumors by supravaginal amputation. The mass removed weighed twelve pounds. She is now in her twelfth day and so far has made a perfect and uneventful recovery.

The case is interesting because of the rapidity of growth of the tumors, their number, the fact that they were attached to the

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\* Reported with specimens to the Medical Society of the District of Columbia, February 18, 1903.

uterus in so many different places, and that the woman had not become pregnant during three years of married life. Operations of this kind can now be done with remarkable success. This patient slept more than nine hours the first night after operation, and now, 12 days afterward, her condition is all that can be desired.

#### DISCUSSION.

**Dr. A. F. A. King** said that it was almost an unheard-of thing for a fibroid to grow to such an enormous size in two years. It had more the appearance of a fatty tumor. He asked if a microscopic examination had been made.

**Dr. Johnson** replied in the negative. He thought that there was no doubt that the growth was a myoma. As regarded the length of time the tumor had been growing, he had only the patient's statement to rely on.

**Dr. Bovée** said that the small cyst under the peritoneal covering of the tumor was interesting. Cullen had proved beyond doubt that such cysts originated from crypts in the mucous membrane of the uterus, which gradually became separated by muscular pressure; they contained blood, mucus, etc.

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### CASE OF TUMOR OF CEREBELLUM.\*

By SAMUEL S. ADAMS, A.M., M. D.,

Washington, D. C.

A white boy, age 12, was admitted to the Children's Hospital, Washington, January 5, 1902. History of tuberculosis on mother's side; she had had four children, one of whom died when one year old, of gastro-intestinal disease; the other two are neurasthenic, with vaso-motor disturbances in one and gastro-intestinal in the other. The present patient's birth and the labor were natural; his head is said to have been larger than usual. He had measles and whooping cough from which he seemed to entirely recover. When 4 years old he began to have drowsy spells lasting two, three and even more days at a time; and vomiting independently of taking food; also had left-side headache. These spells continued, accompanied with dizziness.

In September, 1899, he was noticed to stagger at times in walking and this symptom became more marked until about the summer

\* Reported with specimen to the Medical Society of the District of Columbia, February 25, 1903.



of 1901 when he rarely attempted to walk. In September, 1900, he became diplopic, the symptom disappearing in a few months under treatment. He began to have fainting spells, especially preceding those of drowsiness, afterwards independently. Never had convulsions or aural prodromata.

When admitted to hospital he was well grown and nourished. Said he often vomited, sometimes before, sometimes after meals; the vomiting was often provoked by some peculiar smell and was "projectile;" was constipated, requiring daily enemata. Sometimes involuntary urination at night. Headache nearly every day, always on left side, at first occipital, afterwards temporal. No pain on percussion of head. Frequent vertigo, especially when in upright position and sometimes when lying down. Sometimes had the "fidgets;" his legs would fly up and he was unable to prevent it. Had internal deviation and complete blindness of left eye; vision in right eye very poor; optic neuritis both eyes. Mind bright. Urine 1026, no albumen nor sugar; 3 grains of urea to the ounce.

January 7, had severe pain in left temple relieved by ice to head; constipation relieved by enema; 9th, headache in right temple; 13th, severe headache in left temple, lasting about one hour, when he vomited much mucus with curds; vomiting projectile; no nausea nor pain in stomach; headache relieved by the vomiting; 14th, dull frontal headache after breakfast; after supper had projectile vomiting of large quantity of yellow liquid with curds; no nausea; quite constipated; 16th, some headache in left temple, lasting an hour; 17th, slight frontal headache after breakfast, lasting a short time; mind clear, memory perfect, all senses acute except vision, which was getting worse; 19th, slight headache in left temple, unable to stand without help, swaying to and fro; urine showed no sugar; was nauseated, and vomited after dinner; vomitus contained small quantity of blood; headache continued; 21st, pupils widely dilated; 22d, severe pain in left temple, less toward evening; 29th, vomited twice at night. Reflexes still exaggerated. February 1, vomited twice after breakfast and dinner, slight headache left temple; 4th, temperature suddenly rose to 103, then fell to 99; 6th, slight cough; 7th, was removed from hospital. Temperature in January ranged from 97.8 to 100, mostly not above 99; pulse, 75 to 120; respirations, 18 to 32. February temperature, 98 to 99.2; pulse, 80 to 120; respirations, 20 to 32. After

leaving the hospital, was for a while under the care of Dr. T. A. R. Keech, during whose attendance he died February 16, 1903, age 13.

Necroscopy by Dr. L. W. Glazebrook, limited to the head, February 17; body much emaciated; head measured 23 inches occipito-frontal circumference,  $26\frac{1}{2}$  occipito-mental. Scalp slightly stretched over the skull, which was very thin, averaging about 1-20th inch thick. Sutures wide, averaging  $\frac{3}{4}$  to an inch, but well united. Brain softened; contained 24 ounces clear serum beneath pia, which was ballooned throughout. Semi-solid mass and large cystic cavity in cerebellum.

**Dr. Acker** had seen the tumor. It was about  $1\frac{1}{2}$  inch in diameter; several portions had been removed for microscopical examination. Dr. Adams and he had made the diagnosis at the hospital from the eye symptoms, gait, tendency to fall backward, etc. There was no doubt at that time about the diagnosis.

**Dr. Lamb** said that the intracranial fluid was of course due to pressure.

**Dr. E. E. Butterfield** presented the following report of an examination of the tumor:

The section embedded included the lining of the cyst wall. At one extremity of the section was a portion of the cerebellar cortex, the transition from the normal to the tumor not sharply marked. The tumor itself was composed of moderately numerous cells, between which were delicate interlacing fibrils and numerous blood-vessels. A moderate number of cells presented round or oval nuclei surrounded by thin rims of protoplasm. Occasional spindle cells. The fibrils, which were best seen with diminished illumination, were exceedingly slender and intricately interwoven. In one area larger fibers were collected in wavy bundles of considerable length. The growth was devoid of elastic tissue, except in the vessel walls. The walls of the small bloodvessels showed extensive hyaline degeneration, as evidenced by the following staining reactions:

(1) Failure to exhibit metachromatism when stained with toluidin blue or thionin (after Hoyer).

(2) Negative results when stained with methyl-violet for amyloid change.

(3) The brilliant red which it took when stained by Van Giesen's method.

There were also present moderately numerous, circular, hyaline masses 10 to 15 microns in diameter, probably representing cross sections of hyaline cylinders.

The cyst-wall showed in places tufts of a papillary nature composed of one and frequently two or more layers of cubical or low columnar epithelium resting on a fibrous basement membrane.

Between the tufts the lining was represented by a single layer of low columnar epithelium. Diagnosis: Hard glioma with hyaline degeneration of vessel-walls.

**Dr. D. W. Prentiss** also described the microscopical appearance of the growth; it was that of a glioma or a soft fibroma; a special stain was not used by him, and the characteristics were not clearly brought out. It was probably a glioma. The cyst in one place had the structure of a papilloma.

**Dr. S. S. Adams** said that this was the second case of the kind that he had presented to the Society. He had been impressed by the length of time the child's intellect remained good; in the first case it did so until after the sutures were widely separated by the hydrocephalic condition. In this, the second, case the diagnosis was easily made.

**Dr. Franzoni** said that he was present last summer at an autopsy on a case of cerebellar tumor, and he had hoped that one of the physicians present at that time would bring the case before the Society, but so far this had not been done.

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### ATROPHIC RHINITIS.\*

By CHARLES W. RICHARDSON, M. D.,

Washington, D. C.

Atrophic rhinitis is a chronic catarrhal inflammation of the nasal chambers, having an uncertain onset and an indefinite duration, being attended during its course with increasing and progressive destruction of the glandular and epithelial structures, and the formation of crusts and scales within the nasal chambers, which occasion a distinctive odor; terminating in a true sclerosis of the nasal mucosa and atrophy of turbinal osseous tissues.

Before entering upon a consideration of this subject, we shall devote a few words to the discussion of the existence of two distinct diseases, namely, ozena and atrophic rhinitis. Ozena is simply a term, as its derivation implies, to designate the existence of an odor issuing from the nasal chambers and can be applied with equal force to any diseased condition of the nasal chambers which is attended with an unpleasant exhalation; for example, to nasal syphilitic necrosis, foreign bodies, rhinoliths and sinus diseases. Ozena in itself explains nothing; it simply indicates the feature which is most unpleasant and intolerable in certain dis-

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\* Read before the Medical Society of the District of Columbia, February 18, 1903.



eased conditions of the nasal chambers. It is in fact a term which by some authors has been applied to distinguish a more severe type of atrophic rhinitis, or this disease in the most active stage of its development, wherein the crust formation is most abundant and in which the stench is the most pronounced symptom; the pathological changes and the train of subjective and objective symptoms are the same as in the condition which is more generally described as simple atrophic rhinitis. The odor may be the most pronounced and distressing symptom in atrophic rhinitis; it may come and go; it may be markedly manifested at one period of the life history and almost disappear at another; it may be bilateral or unilateral; and it may be influenced markedly by efforts at cleanliness and through the use of remedial agents. Under these circumstances it seems rather illogical to designate as a distinct disease a *symptom* which is but the product of a well-known and characteristic disease that has a well-defined clinical history and produces uniform pathological changes.

*Etiology.*—There is no other disease in rhinology in which speculation has been so rampant in the consideration of its etiological factors as in atrophic rhinitis. These theories have all been made along scientific lines, advanced by numerous authors after painstaking care and investigation; but unfortunately almost as divergent are their conclusions as the rays of the sun. No doubt this marked divergence of theories is largely due to the fact that no one has been able to trace a given case from the absolutely normal condition into the development of and through the succeeding stages of this disease. We are at the present time apparently as far from the universal acceptance of a tenable theory as to the etiology of atrophic rhinitis as in the beginning of the investigation. The various theories which have been advanced to explain the origin of atrophic rhinitis are of interest and are here given.

1st. The theory has been advanced that atrophic rhinitis is a sequela to and an advanced form of hypertrophic rhinitis. According to this view, there is first the intra-vascular connective tissue hypertrophy and cellular infiltration followed by connective tissue contraction, resulting in more or less destruction of the nutrient arterial supply to the mucosa and osseous structure, producing an atrophic change within the bone and mucosa.

2d. That the condition is the result of an anatomical alteration

in the osseous framework of the nasal chambers (*a*) due to abnormal widening, (*b*) the result of abnormal shortness, and (*c*) due to congenital shortness of the nasal fossae. (Zanfai, Hopmann, Fraenkel, Sauvage.)

3d. That atrophic rhinitis is the result of a purulent rhinitis in childhood which in its later development becomes the atrophic rhinitis of adult life. This theory is strongly advocated by Bosworth.

4th. That the condition is due to trophic changes. Zanico and Boyer, who advance this theory, state that the characteristic lesions of this disease are produced through a tropho-neurosis of the mucous membrane.

5th. As a result of suppurative changes in the accessory cavities. Michel was the first to advance the theory that suppurative changes within the accessory cavities are responsible for the occurrence of the characteristic lesions known as atrophic rhinitis. Grünwald has lately published his views along the same line, and in a very attractive manner attempts to show that this condition is due to lesions originating in the sinuses which communicate with the nasal chambers. Logan, in this country, has also given his adherence to this view.

6th. That the disease is due to a form of rarefying osteitis. This theory has been advocated by Cholewa and Cordes. They assert that there is first a hypertrophy of the osseous structure, and, as a result of this hypertrophy, there is excited a pressure upon the minute nutrient vessels in the osseous canals whereby the nutrition of the mucosa at first, and latterly of the bone itself, is impaired, all of which is attended with alteration of secretion and subsequent sclerosis of mucosa and atrophy of bone.

7th. As due to a constitutional vice. Störk, who advocates this theory, states that atrophic rhinitis develops in a child, the product of a conception in which the father has passed through the florid stage of the syphilitic infection. The child does not develop the cutaneous or other manifestations of syphilis, simply being a weakling, but later on in adolescence shows changes in the nasal chambers which are observed to be the manifestations of atrophic rhinitis. (Meisser, Gerber.)

8th. That the disease is the result of the activity of a specific bacillus. From the time when E. Fraenkel first made his investigations (1882) as to the probable existence of a specific bacillus

in atrophic rhinitis, numerous investigators have striven to separate a bacillus that should answer all the indications, as the active producing agent. Among these works should be mentioned Lounberg Klamann, Thost and Hajek. In 1893 Abel discovered a bacillus which he named the *bacillus mucosus*, and declared that it was always present in atrophic rhinitis, and that it was never or very rarely found in other diseased conditions and therefore it must be viewed as the active factor in the production of the process known as atrophic rhinitis. He also claimed that the relationship between the bacillus and the odor was simply through the fact that the secretion produced was a favorable ground and good nutrient surface for the bacilli of putrefaction, which latter gave rise to the evil smell. Strazza found an identical bacillus, which was never found in chronic or syphilitic catarrh. Paulsen also suggests the theory of Abel, as he has through bacteriological investigation discovered the same bacillus, and states that it is the producer of a chronic purulent rhinitis which is accompanied by fetor and leads to turbinal atrophy. Abel, in reports made after further investigation, states that in whatever stage the process is found, if the essential features of the disease are present, the bacillus is found. In absolute healing, that is, the disappearance of crust, fetor and all muco-purulent discharge, the bacilli also disappear.

With such a wealth of pathological theories as to the nature of a single diseased condition, we seem to be presented with an etiological chaos. This I view as more apparent than real, and from what we have now presented, eliminating certain views which are largely visionary, I think we can come out of the chaos with a good working theory. One cannot but be impressed with the fact that most individuals affected with atrophic rhinitis have some disturbance of the general well-being, and if a searching inquiry is made into their history, the evidences of hereditary taint, either in the form of scrofula, tuberculosis, or syphilis, will be discovered. That the product of conception of parents, one or both of whom are affected with tuberculosis or syphilis in its active or latent stage, should have an impression made upon certain of its tissues, especially those of the connective-tissue type, is certainly not without the bounds of reason. These changes need not essentially be of the nature of pathological changes, but such as, when certain other



conditions are present and which are especially favored, take on changes from the normal to the pathological.

These changes seem to be more manifest in one sex than in the other, for atrophic changes are more frequently observed in the female than in the male. In careful observation made in several hundred cases of atrophic rhinitis by me it has been observed that frequently the female members of a family will be affected with atrophic nasal changes, while the male members in the same family will frequently be affected with tuberculosis. Upon this general impression made upon the product of a tuberculose or syphilitic, is in all probability the primal underlying cause of the pathological disturbance known as atrophic rhinitis. We will see in how far most of the theories advanced can be shown to be dependent upon such a hypothesis. This general condition is in all probability responsible for the changes in the development of the osseous framework of the skeleton which are observed so often in the measurements of those affected with atrophic rhinitis. The hypertrophy which is frequently noted over certain portions of the nasal structure are simple areas of structural changes which occasionally take place in the life history of the disease, and play no part in its production, simply being histo-pathological changes.

In a disease displaying so much activity it would be surprising if the neighboring sinuses were not frequently involved, as well as the pharynx and larynx. In cases where the disease has run its course in the nasal chambers, the process can be brought to a complete resolution only through relief of the active process still present in the sinuses. This has probably led Grünwald and others to conclude that the sinus disease was the cause and not a result. The views of Bosworth are the exact clinical representation of the actual changes taking place without seriously attempting to come to any deduction as to their pathological sequence. We have in the Abel's bacillus mucosus, if supported by further investigation, the active agent, which acting upon the tissue receptive to its invasion, produces the changes which we are accustomed to designate as atrophic rhinitis. Atrophic rhinitis, according to these views, could be described as a peculiar chronic inflammation of the nasal chambers, often extending to the pharynx and larynx, due to the presence of a peculiar bacillus; the catarrhal process excited being attended with the formation of crusts within the nasal chambers and a true sclerosis of the mucosa and osseous structures of the

nasal skeleton. The crust formations are evidently produced through irritation due to the development of the bacillus on the mucous surface. The process can commence with hypertrophy, but rapidly terminates in atrophy, and can as readily extend to the nasal accessory cavities as it is observed to extend into the pharynx and larynx ; in all its extensions it maintains its identity. While it is observed occasionally affecting those who apparently show no constitutional vice, it more frequently affects such individuals, so that this condition may be looked upon as especially preparing the soil for the colonization and development of the bacilli.

The exact period of life in which the atrophic changes commence is very difficult to determine. It evidently begins early in child life. This process, like other chronic inflammations, commencing gradually, without marked symptoms, does not attract the attention of the patient until the process, being well advanced, distresses the parents on account of the offensive odor. It has been observed as early as the fourth year of life, and I have observed well-advanced cases in children as early as the 9th, 10th and 11th year. In fact, the most disagreeable cases, on account of odor, and well advanced in atrophy, that I have ever witnessed, were manifested in two sisters of 9 and 11 years. It is peculiar that the disease seems to affect the female sex more than the male. Whether the fact that women seek treatment for such disturbance more frequently than men explains the preponderance of cases observed in women over men, it is impossible to state, but I am inclined to believe that it is numerically more frequent in the gentler sex. In my experience it has been overwhelmingly more frequently observed in women than in men. This condition, while obtaining among all classes of people, is no doubt observed more frequently among the poorer classes. With us I think it appears more frequently among the first and second generations of the foreign born.

*Symptoms.*—Usually with those affected with atrophic rhinitis we obtain a history of a long-existing catarrh. Frequently we learn that since early childhood the afflicted individual has had more or less discharge from the nose, which was purulent in character and attended with more or less excoriation of the alae nasi, or upper lip. During the early history of the individual the general health was excellent, but as the disease became more manifest

there was a loss of flesh, impairment of appetite and development of anaemia. On inspection of the external nose, changes of a characteristic type will be observed in some individuals, while others manifest no change. This alteration consists in slight spreading and sinking of the nasal bones, which give an undue width to the root of the nose.

The three local symptoms which characterize the disease are the secretion, the odor and the atrophic changes. The secretion of the nasal chambers is markedly altered in this disease. The source of this secretion, whether it is the product of the catarrhal changes in the mucosa or the outpouring of discharge from within the accessory sinuses, which accumulates within the nasal chambers, is still a disputed question. While Grünwald and others may be correct in their contention that frequently atrophic rhinitis and sinusitis go hand in hand, the view would not explain the origin of the identical secretion in atrophic rhinitis, wherein sinusitis is known not to exist. This secretion varies greatly according to the stage in which the disease is observed. In the very early history of the cases it is inclined to be more fluid and is frequently observed in a semi-liquid state spilling into the inferior meatus, while over the inferior and middle turbinates it forms itself into soft pulaceous whitish masses, which separate themselves easily from the underlying mucous membrane. As the process becomes more advanced the fluid secretion is diminished and the crust forms more or less completely over the whole mucous lining of the nasal chambers. Crusts formed in this stage are of a reddish brown or greenish color, scaly-like, firmer and more tenacious in their adherence to the mucosa. Ofttimes in this stage of the lesion complete mucous casts of the nasal chambers can be obtained by removing the crust by means of forceps. After removing the crust in this state and gently insinuating the probe above and beneath the middle turbinate and in the mucous folds in the vertex of the nose we can often observe more or less liquid secretion. In the most advanced form, when atrophy seems quite complete, there is not much crust formation, what little forms adhering in small masses, of a greenish-brown color, over the depressions, or on the upper surface and borders of what remains of the atrophied turbinals.

Fetor is usually present in most cases during some period of the existence of the disease. The fetor varies not only in different



periods of the same case, but also in different cases as to the degree of its intensity. It is a peculiar odor which is quite characteristic, and once noted is never forgotten. The odor is characterized as a musty, rat-like smell. It is usually most intense during the greatest activity of the crust-forming period and is markedly offensive in those cases attended with large pultaceous greenish-white masses. The disagreeable stench is the most distressing symptom to the poor sufferers and often causes almost social ostracism to young girls when so affected. The odor is not appreciated by the patients on account of the destruction of their own olfactory sense.

The atrophic changes extending to the pharynx and larynx give rise to excessive dryness in the pharynx and the formation of crusts in the naso-pharynx, which are raised and expectorated. The voice is hoarse and may be aphonic on rising in the morning, clearing up as the crusts are removed and the secretion excited. An irritative cough is frequently present. Hemorrhage from the nose is an occasional symptom due to the laceration of the nasal mucosa by the separation of the crusts. Nasal obstruction on account of the cavities being filled up with crusts, and consequent mouth breathing, especially at night, is frequently a distressing symptom. Headache, frontal in type, is usually present, and mental inaction with hebetude and more or less impairment of the memory may be present. Nervousness, hysterical manifestations, and melancholia are concomitant symptoms usually brought about either through ostracism or the voluntary shrinking from social intercourse by the patient on account of the consciousness of the disagreeable odor arising from the nasal chambers. The sense of smell is almost always impaired or lost. Contrary to what some observers state, I believe that perforation of the septum is unusually rare in atrophic rhinitis. I have also been impressed with the infrequency of catarrhal and suppurative changes within the middle ear in individuals affected with this disease, and conversely I have noted the extreme rarity of atrophic rhinitis in those who apply for treatment for affections of the tubes and middle ears. Certain ocular disorders are manifest disturbances during the progress of atrophic rhinitis. Among these we may note the various forms of conjunctivitis, blepharitis, dacryocystitis and anomalies of muscular tension.

On inspection of the nasal chambers various changes will be ob-

served affecting the soft mucous tissue according to the state in which the disease has advanced. As is well known, this disease usually affects both nasal cavities, and produces the changes simultaneously in both chambers; occasionally one chamber will be affected and at a later period the other, and very rarely the disease seems to involve only one of the two chambers. On first inspecting the nasal chambers they will be observed filled with this crust, so characteristic of the disease, and this must be thoroughly removed before the exact condition of the underlying structure can be determined. One is immediately impressed with the extreme roominess of the nasal cavities. In the early stages of the disease the mucous membrane presents a pale-reddened appearance. The inferior turbinates seem somewhat shrunk and the middle may appear somewhat pendulous, or the reverse condition may be present. Both turbinates may appear somewhat shrunk in one nasal chamber, the mucous membrane apparently drawn tightly over the surface of the turbinates, while in the other cavity one of the turbinates may seem to be hypertrophied while the other is contracted. In a more advanced form the turbinates are considerably reduced in size, the mucous membrane contracted down firmly on the osseous framework and of a pinkish-white sclerosed appearance. In this state there is considerable space between the turbinates and the septum. In the more advanced stages the cicatrization of the mucosa is complete and the inferior turbinate has undergone such complete atrophy as to appear only as a more or less prominent ridge on the outer wall of the nasal chamber, while the middle turbinate appears as a very thin plate much shortened in its vertical dimensions. In the advanced state the atrophy of soft and osseous tissues has been so complete that a view of the pharynx can readily be obtained by anterior rhinoscopy, so that the upper surface of the soft palate, with its movements in deglutition and vocalization, the mouth of the eustachian tube, and the post-pharynx can be clearly observed.

*The diagnosis* of atrophic rhinitis should be accomplished without much difficulty. There is hardly any other affection of the nasal chambers that presents such a clear and characteristic chain of symptoms. From a syphilitic caries or necrosis it can be readily differentiated by the presence of exposed or necrosed bone in syphilis, which is never present in atrophic rhinitis; by the difference in the odor, and by the constitutional evidences gained

in the syphilitic and not obtainable in the atrophic rhinitis. From a foreign body in this condition we have the sudden onset, the obstruction, usually unilateral, and the presence of something foreign, as observable through the medium of the speculum or as detected through the medium of the probe.

*The prognosis.*—When one considers the vast amount of therapeutic material that has been brought to bear upon this disease, and with what avidity each new agent is hailed, we cannot but be impressed with the great stubbornness of the disease and how futile all efforts so far have been in bringing about a cure of the disease. I have never seen a cured case of atrophic rhinitis. I have seen cases of atrophic rhinitis that have apparently run their course, with large patulous cavities, with freedom from odor or crusts. These are spent cases, not cured cases. I would therefore state that atrophic rhinitis, in the present knowledge of our therapeutic resources, is not a curable disease, but under carefully carried out constitutional and local treatment it is susceptible of improvement, with a lessening of its activity of destructive progress, with amelioration to a complete abeyance of its most unpleasant and annoying symptoms.

*Treatment.*—Whatever line of local treatment is instituted, it is absolutely necessary that cleanliness form the primary and essential feature of this treatment. Thorough cleansing of the nasal chambers once or twice daily with an alkaline, antiseptic wash, introduced by anterior and posterior injection until the solution comes through clear and free from crusts or secretion, is very important. The solutions are introduced anteriorly by one of the various forms of nasal douches, preferably those using only a moderate degree of pressure; and posteriorly by the post-nasal syringe. Patients should be thoroughly instructed in the use of mechanical devices and the danger fraught by forcible cleansing of the nose during the use of the douche. As the quantity of solution which is used is large, it is wise to select some solution which will accomplish good results without being very expensive. I know of nothing else that equals a normal saline solution. This can be prepared each time by adding a teaspoonful of salt to a pint of boiled water, or through using the tablet of nasal plasma of Dr. Murray Macfarlan. Another solution which is very efficacious is composed of one teaspoonful of a 10 per cent. solution of permanganate of potash to the pint of warm water. Boric acid can



be used to the strength of 10 to 30 grams to a liter of water. In the early stages of the cleansing it will be necessary to aid the action of the solution, on account of the density and firmness of the crust, by the use of cotton-covered probes. Daily or every alternate day the case should be cleansed carefully by the attendant physician, and he should go over the whole mucous surface as carefully as possible with cotton-protected probe, removing all crust and pus from within the folds and duplicatures of the mucous membrane. Due caution should be observed in using instruments for douching and spraying to see that they are as simply contrived as possible, that they are aseptically constructed and that they admit of sterilization.

Various forms of local treatment have been suggested, mechanical and medicinal, to meet the various theories that have been suggested as its etiological factor. Cleanliness and active irritation through the medium of irritative drugs are suggested by those believing it the second stage of a purulent catarrh. Those accepting the histological changes believe in curettment, galvano-cautery, and vibrato-massage. Grünwald and his adherents resort to the opening up of diseased sinuses. Boyer and those accepting the tropho-neurotic idea resort to interstitial electrolysis. Indeed, excellent results are claimed by those resorting to the use of electrolysis in the treatment of these diseases, and as its application is so readily made I should strongly advise its use; while the bacteriologist has suggested the various active antiseptic agents, formaldehyde, metokersatol and bi-chloride solutions.

Among the various local mechanical agents that have been suggested are tampons (Gottstein), use of curettes, and the action of electricity. There is no doubt that the Gottstein tampon is a valuable agent in the treatment of this condition, especially in that class of cases in which from various circumstances frequent irrigation cannot be employed. The tampon is readily made, by the patient, out of absorbent cotton and is easily introduced and removed from the nasal chamber. The mass should be large enough to fit well into the nasal chamber and should be nearly as long as the little finger. It should be well greased with a neutral non-irritating oil or, better still, with a 25 or 50 per cent. solution of ichthyol. Where morning and evening cleansing is thoroughly resorted to it is only necessary to wear the tampon from three to four hours daily in each nasal chamber. The use of this agent

will not bring about resolution, but with thorough cleansing and the use of the tampon medicated with ichthyol, there will be a marked diminution in crust formation and lessening of the offensive odor.

I can see no reason for the use of the curette or galvano-cautery as part of routine treatment in this ailment; nor do the advocates of vibratory or interstitial massage seem to get any result by their treatment. This method of vibratory massage originally instituted by Braun is still strongly advocated by many of his adherents. It may be used by hand or motor. In this country Shurly, Price Brown and Bishop claim excellent results through its use. Among the local remedies that are now being used and which seemingly exert more or less influence for good in this type of catarrh may be mentioned formaldehyde, which may be used in the strength of 1 to 5,000, gradually reducing the strength as it becomes bearable to the patient; stearate of zinc, to which is added one gram of powdered nitrate of silver to the 32, insufflated into the cleansed nasal chambers; this, however, should not be used more frequently than every third day. Both of these agents are actively stimulating and cause more or less pain. Menthol is extensively used alone or in combination with camphor or iodine in oily solution. While I believe this a good protective and an exceedingly pleasant agent after thorough cleansing of the nasal chambers, nevertheless I cannot view its use but as aiding and abetting the progress of the disease, and therefore would advise strongly against its use.

In ichthyol we have an agent by which when judiciously used in connection with thorough cleansing, or in connection with cleansing and the tamponade, we gain results which are far superior to those attainable by any other form of treatment with which we are at present conversant. The ichthyol should at first be used in 15 per cent. solution, rapidly increased in strength until it can be borne in 75 per cent. solution, to full strength of the drug. The drug should be thoroughly instilled into every portion of the nasal chamber that can be reached by the attendant, at least every second day. Somers, of Philadelphia, claims great success in the lessening of crust formation and diminution of odor in the use of insufflation of a 25 per cent. powder of citric acid and sugar of milk. Careful examination should be made in all cases for dis-

eases of the communicating sinuses. When diseased they should be treated. The antitoxin of diphtheria has been used in treating this disease without any permanent results.

In the management of all cases of atrophic rhinitis there is one feature that should strongly impress itself upon the therapeutists, and that is the manifest need of radical constitutional treatment. I have never seen a case of atrophic rhinitis in which the individual possessing it did not impress me as one who was constitutionally below par. The whole hygienic surroundings need careful overlooking and correcting whenever at fault. They should be housed, fed, bathed and clothed as well as is consistent with their ability to provide. They should, unless necessity demands, live as much out of doors as possible. Occasional changes of climate and surroundings exert a decided beneficial influence. Correcting of disordered conditions of the alimentary canal is very potent for good, especially the habit of constipation which is so prevalent among this class of patients. It will also be found that these patients improve more rapidly under a treatment that includes some of the following constitutional agents: such as iron, iodine, arsenic, cod liver oil or the hypophosphites.

Three patients were exhibited by Dr. Richardson in connection with his paper :

1. Case of suppurative otitis media lasting from childhood. Dr. Richardson had operated the last week in November, 1902, for its relief. Result good; but 2 weeks afterwards pain in the head on that side; hebetude, drowsiness, especially after 1 o'clock, p. m., and other symptoms of cerebral compression appeared. Patient would intelligently answer questions. Temperature, 99 to 100; pulse slow. On the second day he operated for temporo-sphenoidal abscess, and evacuated  $1\frac{1}{2}$  ounces of pus. Recovery perfect, both as to the abscess and middle-ear disease.

2. A case of caries of the attic and mastoid antrum, with symptoms of compression, in a young man suffering from otitis media chronica suppurativa. The symptoms of compression were even more marked than in the preceding case. Exenteration was successful.

3. A similar case of otitis media chronica suppurativa, with caries of the attic and mastoid antrum, in a young girl. The operation was successful.



## DISCUSSION.

**Dr. Castelli** said that much confusion existed as to the pathology of atrophic rhinitis. The cases could well be divided for description into specific and traumatic. The specific form of the disease was that which followed syphilis, tuberculosis, scarlet fever, measles, etc. The affection might begin as a catarrhal rhinitis, and go on to the atrophic stage. He believed that atrophic rhinitis was but a later stage of catarrhal rhinitis. The traumatic form was the more important, though not mentioned by Dr. Richardson; it resulted from the indiscriminate use of snuffs or powders by those afflicted with chronic nasal catarrh. An irritating agent placed on the nasal mucous membrane had identically the same effect as a constitutional poison circulating in the blood. Cocaine and menthol were particularly harmful; both being protoplasmic poisons.

It was a significant fact that the percentage of cases of atrophic rhinitis was greater in the large centers of population than in small places; this was partly due to the impurity of the air of cities, and partly to the tendency of the inhabitants of large towns and cities to rush to the specialist for treatment without consulting the general practitioner, *i. e.*, to the abuse of specialism. If the present tendency went on the general practitioner would eventually become a mere distributor of cases, turning each of his patients over to this or that specialist for treatment. However that might be, many cases of atrophic rhinitis were undoubtedly due to the abuse of specialism, the abuse being on the part of the patient, not of the specialist; the former was liable to use the powders, sprays, etc., persistently until permanent damage resulted. Patients would, in many cases, do better to suffer a little than resort to the use of remedies which promised but temporary relief at first and which later brought about permanent injury.

For the treatment of atrophic rhinitis, to alleviate, not to cure, he commended applications of lactic acid, 10 grams to 15 cc. of water, and also iodol. Either of these met the principal indication, namely, to remove the nasal odor; iodol did this by virtue of the iodine which it developed in the nascent state. In conclusion, Dr. Castelli said that he was not a specialist and was not familiar with some of the remedies mentioned by Dr. Richardson; he commended lactic acid and iodol on account of the successful results which he had obtained from their use as a general practitioner.

**Dr. McKimmie** said that cases of "atrophic rhinitis" which were cured were not cases of true atrophic rhinitis at all. They were instances of a *pseudo* form of the disease, which was amenable to treatment and which was best illustrated by children living under unfavorable conditions in cities, who had poor constitutions, enlarged nasal chambers, etc. The symptoms in some of

these cases very closely resembled those of true atrophic rhinitis, but they were not instances of this disease, for the reason that they got well under local and general treatment—tonics, fresh air and improved hygienic environment.

Dr. Richardson had gone over the pathology very thoroughly, and he was unable to add anything on that subject. All were agreed that a systemic vice was at the foundation of every case. His experience and reading had led him to believe that the first stage of atrophic rhinitis, while not necessarily the outcome of a hypertrophic rhinitis, was nevertheless a true inflammatory condition; and later, as a result of impoverished nutrition due to vascular changes, the atrophy took place.

He also had noted the comparative rarity of ear complications in this disease. One would naturally expect them on account of the exposed openings of the eustachian tubes and the enlarged chambers. In this connection he would say that he believed that erroneous methods of blowing the nose were responsible for many cases of ear disease and that patients should be instructed on this point so as to avoid the forcing of infective matter into the middle ear.

No form of treatment for atrophic rhinitis had proved successful in his hands. Cleanliness was the main point, and this should be impressed on the patient.

**Dr. Dye** said that 15 years ago he had given especial attention to atrophic rhinitis in children under 10 years of age. In nearly every case there was a history of purulent rhinitis. Salt solution had given him the best results as a douche; formerly he used ammonium chloride. While each case would seemingly go steadily on to complete atrophy, one should not be discouraged at the results of treatment, because much could be done to alleviate the distressing symptoms of the disease.

**Dr. Richardson**, in closing the discussion, thanked those who had therein participated. He did not agree with Dr. Castelli in his remarks concerning specialism, or the possibility of the medicines of the specialist setting up an atrophic rhinitis. Dr. Castelli had advocated the use of an agent which was capable of doing much more harm than any of the remedies used by specialists.

In answer to a suggestion by Dr. J. Preston Miller with reference to the possibility of restoring the atrophied turbinates by the use of paraffin, Dr. Richardson said that little, if any, good could be accomplished in that way, because it was impossible to restore the mucous membrane and underlying turbinate tissue which had been permanently atrophied or destroyed.

MULTIPLE FISTULAE OF THE PERINEUM, WITH  
REPORT OF A CASE.\*

By WALLACE NEFF, A. M., M. D.,

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There is no condition more troublesome and disappointing to treat than fistulae of the perineum, the result usually of a neglected *fistula in ano*. This is due to the fact that we have a chronic condition, an infected area, unhealthy tissue, and generally an old and broken-down subject with which to deal. A fistula may be either *complete* or *incomplete*, its principal characteristic being its chronicity. Tuttle, in his admirable work (*Diseases of the Rectum*, p. 354), classifies them also according to the tissues involved; those which simply pass underneath the skin as *subtegumentary*; those which pass outside the muscular apparatus of the rectum, or anus, as *submuscular*. They are also described as simple, complex or complicated; *simple*, when a sinus leads from the skin or mucous membrane into the perirectal tissue, or a complete tract leads directly from an opening in the skin to one in the mucous membrane; *complex*, when there is extensive burrowing, resulting in a tortuous tract, with several openings in the skin and one in the rectum, or two or more openings in the rectum, with one upon the skin; *complicated*, when there is necrosis of bone, or connections with the urethra, bladder, vagina and uterus. Pathologically, they are divided into the *specific* and *non-specific*; the *specific* being due to tuberculosis, carcinoma or syphilis; the *non-specific* to injuries or inflammation.

The frequency of fistula is shown by the reports of general hospitals, which state "that more than one-half of all operations for rectal diseases are for fistula. Of this number 70 per cent. are complete, 20 per cent. blind external, and 10 per cent. blind internal." (Tuttle, p. 355.)

*Etiology.*—With the exception of the few cases caused by penetrating wounds, they originate in abscesses. Destructive ulceration, the result of an injury, or an abscess due to tuberculosis, syphilis or a stricture, always precedes the formation of a fistula. It is more frequently found in males, and may occur at any age, but usually during middle life. A certain number are undoubtedly

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of tuberculous origin, but it is still a disputed question whether these are due to an initial inoculation of tubercle bacilli or are secondary to a focus elsewhere in the body. When due to syphilis, they are usually the result of stricture of the rectum.

*Symptoms.*—The usual history is that of an abscess that has opened either internally, externally or in both directions, resulting in a chronic condition. Instead of healing, a fistula is formed, with thickened walls and more or less discharge, causing itching and irritation, but little pain on defecation or spasm of the sphincter.

*Diagnosis.*—If a chronic condition exists under favorable conditions for healing, it may be considered pathognomonic of fistula. The original source of infection must always be sought for. On examination, an opening or tubercle will be found, which, when explored with a probe, will determine the character of the fistula. Injection of dioxygen is a valuable aid in discovering the course of the fistula and the extent to which burrowing has taken place. It is sometimes impossible to pass the probe from one opening to another. The principal thing is to discover the course of the tract that leads from the rectum into the abscess cavity. If this can be obliterated, and reinfection prevented, the other tracts can be corrected without much difficulty. The cavity should be freely opened, the finger introduced and a probe passed from the opening in the rectum until it touches the finger.

*Prognosis.*—This depends on the pathological nature of the fistula, the extent of tissue involved, and the constitutional condition of the patient. Tuttle states that "a large percentage of cases operated on are failures. Less than 45 per cent. out of 2,196 cases collected were cured" (p. 372). In well-developed cases of pulmonary, genito-urinary or intestinal tuberculosis, there should only be interference enough to secure proper drainage and to make the patient comfortable; the operative procedure being very different in a fistula in a tuberculous subject and a tuberculous fistula, which is a local condition. When a patient is otherwise healthy the radical removal of an infected focus should be done as quickly as possible; the same as in the cases of tuberculous bones or glands.

*Treatment.*—The object of all treatment is to get rid of a chronic suppurating tract, either by granulation or by excision with immediate suture. Repair by granulation is the method usually

sought for, and is secured by incision, curettage, cauterization, drainage and dilatation of the sphincter. The method of incision, and repair by granulation is an old one, but excision with immediate suture is of comparatively recent origin. It is by far the best operation, especially in old cases, where there is great induration and unhealthy tissue to deal with. It consists in complete excision of the fistula and immediate closure of the wound, in the hope of getting primary union. The after-treatment in these cases is especially important, for if the wound is not carefully watched and dressed, it will heal superficially and leave a cavity underneath. The surgeon who is most careful in his after-treatment will avoid recurrences and many unfortunate complications, and undoubtedly obtain the best results.

*Report of Case.*—The following case illustrates what can sometimes be accomplished in old, neglected conditions, in broken-down subjects, by means of the radical operation of complete excision, with immediate suture.

J. S., white man, aet. 64. Referred to me by Dr. Adams, May 1, 1902. He gave a history of more or less rectal trouble for the past 25 years, with one or more operations for *fistula in ano*. A large abscess in the left gluteal region was evacuated, curetted and drained. He was told at the time that the only chance of permanent relief would be by a radical operation, as the pus had burrowed in every direction, and there were a number of fistulous tracts. He demurred at this, and insisted on deferring the operation on account of urgent business engagements. A few days later (May 5) a second and smaller abscess was opened and drained. From this time on the fistulae were cleansed almost daily with dioxygen, and dressed antiseptically.

August 1 he decided on the radical operation, and went to the Sibley Hospital. He was carefully prepared for the operation, which I did the following day, being ably assisted by my friend Dr. Balloch. On syringing with dioxygen and tracing the fistulae with a probe, the perineum was found to be honeycombed with fistulae, 7 in all being found. They extended from the anus to the left side of the scrotum, and laterally in every direction, reaching far out on the left thigh. The opening in the rectum was located, and the different fistulae incised. The walls were infiltrated and indurated, and the cicatricial tissue was as hard as cartilage. This unhealthy tissue was all cut away, and showed

a most extensive dissection of the entire perineum. The wound was thoroughly cleansed, and buried sutures of catgut used in the deepest portions. The entire wound, with the exception of the opening into the anus, was closed. Some idea can be formed of the extent of the wound when it required 60 interrupted silk worm sutures to close it.

Primary union occurred, except at the anal opening, which was purposely packed and left open for drainage, and one other point about one inch in length, where two or three sutures cut through, owing to the strain put on them by a very restless patient. These points healed kindly by granulation, and when he left the hospital, at the end of five weeks, the repair was perfect, and his general condition greatly improved. When last seen and heard from, there had been no recurrence, and there is every reason to suppose that a permanent result had been secured.

**Dr. Balloch** said that he was present at the operation. The patient was an old man and the number and extent of the fistulae made the operation unusually serious as regarded prognosis. The perineum was widely dissected. In view of these facts he heartily congratulated Dr. Neff on the favorable result he had obtained. It was remarkable how patients would let this condition go on until they had a watering-pot perineum; five or six openings. The cases were very discouraging, and Dr. Neff's result would encourage us to hope for similar results in the future from radical operation.

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## A CONSIDERATION OF THE LIVER AS A FACTOR IN THE CAUSE, PREVENTION AND TREATMENT OF DISEASE.\*

By ROBERT S. LAMB, M. D.,

Washington, D. C.

Eighteen years ago Brunton and Fayrer edited a compilation of lectures, delivered by Murchison in 1874, on *Diseases of the Liver*. Since then no book of moment in the English language has been devoted exclusively to this subject, except that of Waring, which, however, deals with the surgical side.

Until the germ theory of disease became so well supported and substantiated it was very generally believed that derangement of

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the functions of the liver was responsible for most diseased conditions.

Treatment hitherto has been mainly empirical, and today, while we are congratulating ourselves on the wonderful strides taken during the last few decades in the theory and practice of medicine, there is much to be desired in the treatment of disease. Lamentable as is this fact, we should not be discouraged, but remember that all progress has been and is made in spite of the many who refuse to prove for themselves and use the means that others in their own experience find to be effective.

The world has, by ignoring or ridiculing the man who would state some new experience, delayed the acceptance of many a truth until years after the death of the experimenter.

A glimpse into the past shows the infant science chemistry growing rapidly and many medical men accepting its explanation of disease and treatment to the exclusion, for a time, of all other theories ; physics, absorbing the energies of many scientists and promising to solve the problems of life ; bacteriology, in the foreground, seeking to explain the etiology of all disease ; and biochemistry, younger and full of health and strength, giving vigorous aid to bacteriology in the solution of the problems that the others found too intricate.

We may congratulate ourselves on the triumphs of these sciences and the victory for vivisection, by which we have assuaged and are ameliorating the sufferings of countless millions. That the average length of life is twice what it was 100 years ago is of significance.

It is by suffering, trial and long experience that we have learned the value of preventive medicine, and through the sciences we have learned its art.

There are two methods of preventing germ disease which are effective ; one by preventing the ingestion by or inoculation of individuals with the pathogenic organisms or their products ; the other by increasing the resistance of the cells of the individual human organism, enabling these cells to withstand the attacks of the germs and their toxins.

The second way, with which we will here concern ourselves, is much more feasible and controllable.

The layman knows that many times when the doctor is called he administers first a cathartic ; and the layman often anticipates

the doctor's being called by taking a saline or other laxative, and is able sometimes to altogether avoid sending for the doctor. Yet the layman understands not the reason of his betterment, and, if it be not too great a reflection to say it, the doctor himself often knows not the philosophy of his treatment.

For years now the liver has not received the consideration due it as a factor in the cause and prevention of disease. The very fact of its being the largest organ in the body, containing at most times one-fourth the blood of the body, should be sufficient to call attention to and arouse interest in it. Let us consider for a moment the vast disturbance that results from a deficiency in the quantity or quality of the blood.

The bloodvessels are like the lines of a great railroad system, carrying supplies to and from stations and between the manufacturing and storing and distributing areas of the animal economy. If there be a wreck or other trouble along the main line, a branch line, the collateral circulation, will be established or brought into service until the trouble is removed, unless the wreck is so serious as to stop all traffic. As the electric operation-centers along the railroad lines make known supply, demand and distribution, so do the nerves throughout the body to the circulating system in and through the organs of the body. Whatever is needed by the liver must be carried to that great center, and whatever is needed from it by the outlying or remote districts must be carried from it to them.

Believing with many eminent scientists that all life is of chemic origin and all diseases the effect of inequivalent supply and demand of biochemic processes from various causes, we also believe that bacteria by biochemic processes interfere with cell metabolism, producing local or general cell death in proportion to the potency of their toxins and the inability of the cells which are attacked to adequately resist.

To protect the animal from diseases of infectious or of autogenic origin we must keep the proper proportion in the chemic reactions, and to cure diseases we must help to establish the normal equilibrium; and to do this we must, of course, know the normal. This we can know approximately, now that we have improved methods of analysis of the blood, secretions and excretions of the body and may discover any quantitative or qualitative deficiency of their constituents.

Furthermore, because the chemist has synthetically made the products of some normal organs and extracted those of others from homologous organs of the lower animals, we are able in some cases to supply, as necessary, the deficient constituents.

Briefly considering first the normal products of the liver, we will then see that some in abnormal quantities have pathogenic significance.

1. Proteids are found as cell protoplasm in the liver.

2. Glycogen, the true carbohydrate, which is distributed evenly throughout the liver in amorphous granules about the cell nuclei, and is formed chiefly from the carbohydrates of food, is found in all the tissues of the fetus and in adult muscle, is transformed into grape sugar by the action of the hepatic cell protoplasm and is carried throughout the body by the blood to nourish the tissues. Though seldom a cause of disease, it sometimes, as grape sugar in physiologic excess, causes glycosuria, and in pathologic excess in the blood it causes diabetes mellitus. This is possible through an overproductive diet, a lack of assimilation or lack of decomposition of sugar.

3. Fat is present in the liver in small quantity; when found in excess in the cells it constitutes fatty degeneration. In very fat persons fatty infiltration is often found.

4. Bile is secreted by the hepatic cells, and contains:

- a. Mucus from the large bile ducts and gallbladder.

- b. Glycocholic and taurocholic acids, which are bactericidal and antifermentative in action, and dissolve and promote elimination of the solid excretory products of the liver. In excess they cause disintegration of red blood corpuscles, liberating hemoglobin, disintegration of body cells, act as vaso-constrictors, reduce motor and sensory activity, slow the heart beat by direct chemic action on the heart muscle and ganglia, and produce coma, stupor and death. They are probably formed by reaction of hemoglobin in the presence of glycogen; they have a fat-splitting, emulsifying and digesting action. They are found normally in small quantities in the blood, and are not wholly eliminated from the system, but are reabsorbed in the intestine and repeat their functions. A marked deficiency of them causes jaundice, chloasma and sometimes the formation of gallstones; the cholesterin and bile pigments not being eliminated. Because the putrefactive processes are not inhibited or retarded, indol and skatol are now formed in



such excess as to cause edematous infiltration, and small hemorrhages in the kidneys, hyperemia of liver, lung and spleen, general intoxication, increased by marked heat or cold, and edema of nerve centers, paralysis and death. Usually in health indol and skatol are united with sulphur in the liver and are excreted by the kidneys.

c. Biliverdin, or oxidized bilirubin, is found in the gallbladder and in the intestines. Bilirubin is formed by disintegration of red blood cells, becomes converted into hydrobilirubin and stercobilin; in excess it gives the color in jaundice and chloasma by being deposited in the skin.

d. Cholesterin, a monatomic alcohol, occurs in blood, yelk and nerve tissue, and is dissolved and eliminated by bile acids.

e. Lecithin, or neurin and glycophosphoric acid, palmitin, stearin and olein soaps.

f. Some inorganic compounds, sodium and potassium chloride, calcium and magnesium phosphates and iron in large quantities.

g. Uric acid and urea are ammonium derivatives, formed in the liver, carrying off the nitrogen from the system; the uric acid is found in the blood and urea in the urine. Rarely, uric acid is found free in the urine. Excessive production or lack of elimination will result in the deposit of uric acid salts in joints, in gout and rheumatism, urates in the external ears as *tophi*, and as incrustations on serous membranes. From uric acid it is probable that the following diseases take origin, at least in part: Albuminuria, albuminuric retinitis, trachoma, sometimes glaucoma, nasopharyngeal catarrh, adenoids, hypertrophied turbinates, and an acute coryza in which the mucus reacts to uric acid tests, gouty diarrhoea and that form of leucorrhoea found in gouty subjects, eczema and some other skin diseases, uremia, anemia, leucocythemia, asthma, bronchitis, dropsy, epilepsy, mental depression, neurasthenia, melancholia, neuritis, etc.

The preceding evidences of the dire results of failure to maintain or inability to restore balance when it is disturbed are sufficient to show the seriousness of this subject, which should receive the attention due its importance in the field of preventive medicine.

Furthermore, experience teaches us that many diseases are the result of long abuse of the digestive system and accumulation of waste products of malnutrition and malassimilation which the

overworked excretory organs cannot eliminate; these are predisposing factors in the acute infectious diseases.

The liver, then, in its normal condition will prevent the passage into the blood of certain deleterious substances, will form products that antagonize some otherwise poisonous substances, as caffein, nicotin, indol and skatol, and attenuate or render innocuous the bacteria and their toxins; it will allow the necessary amount of glycogen for nourishment of the tissues to pass into the blood, and will excrete some injurious products and aid in the excretion of others.

Knowing these things, how can we best restore the normal equilibrium? Loeb, in his recent investigations, has shown that the heart removed from the body beats in a normal solution of chloride of magnesium for several days, and the beat can be accelerated or retarded at will by changing the strength of the solution. Perhaps, then, the individual cell can be favorably treated by contact with a similar solution; and this is altogether probable from what we know of the action of a normal salt solution by enema or hypodermoclysis.

To restore equilibrium we must regulate the diet, give the digestive organs rest, and prescribe only small quantities of easily digested food in order that no undigested, putrefying material will be absorbed and carried to the liver.

One-half milk and one-half Vichy water are best for those who can take milk.

Eschew meats, for by experiment we find that peptones and albumoses when injected into the circulation act as poisons, causing convulsions and death; furthermore, the fatigue products contained in the meat are the same poisons we are trying to eliminate.

Give carbohydrates unless there is glycosuria or diabetes, for they supply the energy necessary as soon as the patient is able to go about.

Prescribe exercises suitable for the case as soon as the patient is able to take them, even in bed. For persons taking exercise will double the amount of their daily intake of oxygen, thereby greatly increasing the oxygenation of sugars, starches and proteids to be used in metabolism and decreasing the excessive quantity of them otherwise not eliminated. We find that typhoid or parturition

cases do well and are sooner able to walk steadily and without aid if given exercise.

Deep breathing is easily practiced by all; six full inhalations three times daily, will stimulate the liver to secrete more bile and excrete it, and will promote oxygenation of the blood and the elimination of waste.

Massage is excellent for those who can afford it, and those not so fortunate as to have a trained nurse may be massaged by some attendant under instruction of the physician.

Exercise and massage help assimilation, increase consumption and favor absorption of nutriment and elimination of waste.

Elimination is best accomplished by an enema every three or four hours of one pint of a normal salt solution at 105 F.; this solution stimulates the liver and bowels, sustains the heart and secures asepsis of the intestines.

The application of hot fomentations to the abdomen in the region of the liver accelerates the circulation in the liver, producing increased secretion of bile and elimination of bile products.

To this may be added in suitable cases the glycocholate of soda in 5-grain doses until a diarrhoea occurs containing much bile; then in 3-grain doses after meals to promote absorption and assimilation of fat.

The statements in our text books in regard to the importance of dietetics in the treatment of many diseases are seldom definite as to the best foods to give and those to be avoided. If dietetics is as important as medical books state, then in future more time should be devoted to teaching it in our medical colleges than is now given, so that the practitioner may be able to prescribe proper food in the individual case, to be given at the proper time and in the proper quantity.

Why should we do and allow to be done things known to be hurtful and not protest against such habits of our patients as we know are injurious? Yet this is done each time the doctor, through ignorance or carelessness, fails to inquire into the habits of his or her patients and to prescribe suitable regimen. Failing to be explicit is equally serious, for under the head of "light diet" or "liquid diet" many injurious so-called foodstuffs have been given; so that today many of our best physicians, realizing the danger of being inexplicit, give written instructions to their patients and nurses.



More time should be given to teaching the diseases of the liver and diseases caused by the products of the liver, and to experimental research on the action of these products; more time to teaching the therapeutic effects of certain exercises, of massage and hydrotherapy, which have lately done so much in the cure of nervous conditions, even acute insanity.

Recommendation is made of the hot normal salt solution or normal solution of magnesium chloride, in conjunction with the ice cap to the head, in heat stroke, pneumonia, hepatic congestion, renal congestion, uremia, cerebral congestion, apoplexy and meningitis.

In pneumonia, hepatic congestion, uremia, epilepsy and typhoid fever we have had experience with beneficial results, and can highly recommend hot salt enemata and hypodermoclysis.

The bile acid salt, sodium glycocholate, is an excellent cholagogue, and the only available natural one except ox-gall, as all so-called cholagogues have of late been experimentally shown to act mechanically. We have used it in eight cases with marked improvement in all.

In conclusion, we may say: 1. That bacteriology has so overshadowed the former theories of diseases, their causes and treatment, as to have obscured for some years the relation of the liver to the prevention and cure of disease.

2. That organotherapy has been established by biochemists, has been and is successful in treating some diseases of some organs, and is beginning to be useful in treating the diseases of the liver and diseases caused by the products of the liver.

3. That dietetics is important, and definite attention should be given to it by the lecturer and practitioner that patients may receive the rational treatment made possible by our improved knowledge of therapy and therapeutic measures.

4. That exercise, outdoors in the sunshine if possible, massage and hydrotherapy may be used to some extent in almost all diseases, and should be used where possible, as they are so closely allied to nature and have not the deleterious effects attributable to many drugs, which sometimes whip up an organ until its functions are deranged and permanently injured.

5. That patients, being better educated, do and will require of the practitioner the application of the most improved and scientific therapeutic measures in the treatment of their cases, and to keep

pace with the progress of the other sciences we must avail ourselves of all experiments leading to the elucidation of disease, its causes, prevention, symptoms and treatment; diseases will then have milder symptoms and fewer sequelae. The resistance of the individual will be increased and each generation give a better heritage of health to its progeny, with which to battle with the world of intricate problems on every side.

#### DISCUSSION.

**Dr. A. F. A. King** said that an expert physiologist or a biochemist could best discuss the subject as presented by Dr. Lamb. While he could not himself discuss it, he felt that he must commend the paper. Fifty years ago it was customary to ascribe many obscure conditions of ill health to liver disease. Twenty years ago, in many regions, it was the same with malarial disease. Now *la grippe* covered a multitude of pathological states that could not be well explained. During the last century it was a common practice to administer "blue pill," to stimulate the liver and increase biliary secretion; now, on the contrary, we perhaps disregarded the liver too much as a factor of disease.

Years ago he had published a paper on faulty nutrition depending on deficient portal circulation. The blood entering the liver by the portal *vein* had no *arterial* impulse to propel it through the capillaries. The force carrying on this portal circulation was the contraction of the abdominal walls and diaphragm during *respiration*. Hence physical exercise, public speaking, singing and laughing, by increasing respiratory movements, helped the portal circulation and the processes of digestion and nutrition were benefited. Thus the old adage "laugh and grow fat" was not only true, but easy of explanation.

**Dr. Kober** recalled that years ago laymen used to speak of the *blood* as being "out of order." It was a question whether there was not some truth in the assertion, and whether our experimentation had not tended to substantiate the opinion that impure blood is a factor in disease. If it is true, the liver certainly plays an important part in the etiology through the blood.

**Dr. S. S. Adams** did not feel qualified to discuss the paper, so many points in the different branches having been changed since he studied medicine. Yet we must recognize the fact that we know more of the functions of the liver now than physicians formerly did, and the average physician of today was better qualified to make a diagnosis of diseases of the liver; *e. g.*, we knew that transmission of bacteria to the liver through the circulation might cause abscess of the organ. The text-books dealt well and fairly with the liver as a factor in disease; but in spite of this and a better knowledge of the subject on the part of the profession,

peculiar mistakes were made by even eminent diagnosticians. He cited a case in which the diagnosis of gall-stones was made by a well-known practitioner; when the surgeons opened the gall-bladder only an hour-glass contraction of the duct was found, and this being relieved the patient recovered. The man had been to Carlsbad, and the eminent doctor defended his diagnosis by saying that the water had dissolved the calculi and only an induration of the duct at the site of impaction was left. This was, of course, a remote possibility.

Many persons treated themselves for "liver trouble," and thereby deprived themselves of efficient medical attention. This, however, could not be helped.

**Dr. Bishop** commended the paper, but wondered why Dr. Lamb omitted to mention electricity as a stimulant to the liver; it was the best known stimulant to the hepatic function. It acted on the organ itself, and also on the nerve centers governing it. It gave also the effects of massage. He mentioned a case in which he was using the static doubly-interrupted current three times weekly for this purpose with satisfactory results. An X-ray photograph of the patient mentioned by Dr. Adams would have prevented the error in diagnosis.

**Dr. Chappell** thought that the common failure of treatment to cure hepatic affections was not as a rule due to the physician or to any lack of knowledge on his part; it was due, in many cases at least, to failure on the part of the patient to carry out the physician's instructions. They were often unwilling to do their share; they expected the doctor to cure them with a single prescription. He often felt that a half hour's talk with a patient on the importance of proper exercise, regulated diet, etc., would do more for him than medicines possibly could. Most patients, however, would not heed the instructions given them; sometimes this was due to mere disinclination, and sometimes to the demands of business, etc. Instructions should be given on these matters from childhood in the schools. He was happy to say that steps were already being taken looking to this end in this city. In conclusion he related a case in which an erroneous diagnosis of gall-stones by a homeopathic physician led the physician to make an unnecessary operation, as in the case mentioned by Dr. Adams.

**Dr. Lamb**, in closing the discussion, said that the *Journal Amer. Med. Assoc.*, Feb. 28, 1903, contained an editorial on proteid metabolism which was well worth reading; and on another page Dr. Hutchinson had an able article on gout, in which he dealt with some of the points considered by Dr. Lamb in his paper. Dr. King had brought out several points of interest. It was remarkable that old and tried, although simple, remedies are daily neglected by physicians.

As stated by Dr. Bishop, electricity was undoubtedly a valuable remedy in hepatic disorders; it was not, however, within the reach



of most practitioners, and they must send their patients to specialists, which was manifestly a disadvantage. He had obtained equally good results from hydrotherapy, and dietetic and hygienic treatment.

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DOWNES' ELECTRIC ANGIOTRIBE IN CASES OF  
REMOVAL OF UTERUS, APPENDAGES,  
APPENDIX, ETC.\*

By J. W. BOVÉE, M. D.,

Washington, D. C.

The case of cancer of the uterus was an early one, involving the cervix but slightly and the operation was done entirely from above, with comparative ease and free from hemorrhage. I was particularly pleased with the work of the instrument on the blood vessels and vagina. The latter I was able to completely close by it and thereby avoid spilling discharges from the cervix in withdrawal of the specimen; the flaps of the stump of it were separated and a small strip of gauze pushed into it from above, which finished the intraperitoneal portion of the operation, as the flaps of the peritoneum, bladder, &c., neatly fell together over the gauze.

In the pus case the tubes were nicely removed from the top of the broad ligaments, one ovary being degenerated, and was sacrificed. The vermiform appendix was also removed by the use of the instrument. The stump at the caecum was closed over with number one catgut, which was all the suture material I have used in the abdomen with this instrument; except on two occasions I have sutured the stump of the uterus in removing the body of the organ. In vaginal hysterectomy I have been much pleased with its work, no sutures or ligatures being applied.

This instrument has been described by Dr. A. J. Downes, the inventor, in *American Medicine*, December 20, 1902, and in *American Gynecology*, 1902, I, 575, and in the latter journal, page 585, by Dr. C. P. Noble. With the transformer he has adopted, the instrument may be used by either the continuous or the alternating street current, providing 104 volts are available. The same strength of current is applicable alike to the three sizes of angio-

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\* Reported with specimen and instruments to the Medical Society of the District of Columbia, March 18, 1903.

tribes. Twelve seconds suffice to boil water on the blade of the smaller instrument and a little more time for the largest one. The angiotribe is applied and the current turned on as needed for different tissues. The ribbon made by it is like writing paper in thickness. In cutting along the ribbon as much of it as possible should be left on the stump. Experience is required to decide the amount of cooking in each instance and for rapidity of manipulation of the instruments.

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### CASE OF SYPHILITIC ULCERATION AND STRICTURE OF RECTUM; GONORRHOEAL TUBO- OVARIAN CYSTS.\*

By D. S. LAMB, A. M., M. D.,  
Washington, D. C.

A mulatto woman, age 33, had had gonorrhoea and also a miscarriage in 1887, when 18 years old. She also acquired syphilis. About June 1, 1902, she began to have bearing-down pains in and bleeding from the rectum, and feces passed from the rectum into the vagina. Admitted to hospital Oct. 24; was fairly well nourished; showed scar of ischio-rectal abscess; a recto-vaginal fistula and stricture of rectum. Nov. 3 her temperature, which had been normal or subnormal, rose to 100.6, on the 4th to 101.4, 6th to 101.6, on the 7th was 101.4, and Dr. E. A. Balloch then did a left lumbar colotomy, making an artificial anus. On the 9th her temperature was 102.2, 11th it rose to 104.2, 14th to 105, and she died on the 15th of purulent peritonitis.

The necroscopy by Dr. Lamb showed the wound of operation somewhat ragged, dark and greenish, the healing having been interfered with by the infection which had prevailed for several days before operation. Much purulent fluid in abdomen and some recent adhesions of intestines. Color normal, except for the wound of operation. The rectum showed general deep ulceration and thickening of mucosa and submucosa and several *islands* of thickened mucosa; lumen much diminished and walls rigid; sub-peritoneal fat increased in quantity; uterus normal; tubo-ovarian cyst on each side containing serous fluid which had probably years before been purulent.

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\* Reported with specimen to the Medical Society of the District of Columbia, March 18, 1903.

## CASE OF DECIDUAL HAEMATOMATA.\*

By A. BEHREND, M. D.,

Washington, D. C.

This condition is also described under the head of *endometritis decidua tuberosa*. The uterine surface of the decidua is thickened and rough, being covered with coagulated blood. The surface directed toward the embryo is very irregular and made up of a number of bosses or excrescences, ranging in size from that of a small pea to that of a walnut. They are covered by a delicate shiny membrane, the amnion, and are of a dark bluish or purplish color from the contained blood. On cross section, the prominences consist almost entirely of clotted blood.

The cause of this condition is obscure, but it is believed to be of inflammatory nature. Syphilis is especially mentioned in this connection. As a result of the hemorrhagic extravasation and subsequent coagulation the proper development of the placenta is prevented and the nutrition of the embryo is imperfect. The latter soon dies and sooner or later abortion occurs. In this particular case the death of the fetus took place, judging from its size, about four weeks after conception.

The patient, about 30 years old, mother of three children, in the latter part of September, 1902, had a profuse menstrual flow lasting for several weeks, during which she followed her usual avocation. She consulted me in January, 1903. I suggested pregnancy, but she said that was impossible, as her husband had been absent since her last period, and also that once before her menses had stopped several months. As she was somewhat anemic, I gave her a bottle of sanogen. Saw nothing of her again until about three weeks ago, when she had a profuse flow of blood and slight pain. The flow lessened and by the fourth day she seemed all right again. The flow returned, with much pain. Morphine was given without result. I then insisted that she send for a physician, as I did not attend labor cases any more. Dr. Wallace Johnson was called. He diagnosticated pregnancy and gave morphia, but in a few hours the specimen was discharged.

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\*Reported with specimen to the Medical Society of the District of Columbia, March 18, 1903.



CASE OF TUBO-OVARIAN ABSCESS AND  
SALPINGITIS. OPERATION.\*

By J. WESLEY BOVÉE, M. D.,

Washington, D. C.

Mrs. B., white, age 28, was admitted to Columbia Hospital February 10, 1903, for fibroid of the uterus and ovarian abscess. Her parents and one brother died of consumption at the ages of 40, 33 and 17 years. Her menses began at 12 years, are regular, slightly painful, very profuse, and last three to four days; the last period was February 1. She has a yellow purulent vaginal discharge. She had one child eleven years ago after a normal labor, and has had no other pregnancy. About five years ago she had an attack of inflammation of the left ovary, and was ill two weeks; had no further trouble until October, 1902, when another attack occurred. She was at that time in Nova Scotia, and a vaginal incision in a right ovarian abscess was made. Since then she has had a profuse purulent discharge with attacks of flooding. The present illness dates from October, 1902; the vaginal discharge is constant and offensive, but her general health has been good. Her physician in this city told her she had a fibroid of the uterus. An examination reveals the uterus about normal in size, pushed to the right and front by a large nodular mass extending from the vagina nearly to the umbilicus. It is firmly fixed, elicits fluctuation through the abdominal wall, and is diagnosed as pyosalpinx. In the roof of the vagina, behind the cervix, is a cicatrix, which probably marks the site of the vaginal incision mentioned.

Operation, February 17, 1903. Double salpingo-oophoro-hysterectomy. When the abdomen was opened the uterus and appendages were found covered over by adhesions of intestine, omentum and bladder; only a part of the right ovary was to be seen. Adhesions to the right appendage were separated, and both tube and ovary found so diseased as to require removal. The right infundibulo or pelvic ligament was clamped, cut and ligated, and the right uterine artery clamped opposite the cervix, the uterus cut across at the internal os and the left uterine artery clamped; I intended continuing this process and including the right ovarian vessels, but marked adhesions of infiltrated in-

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\* Reported with specimen to the Medical Society of the District of Columbia, February 18, 1903.

testinal loops to the outer end of the infiltrated broad ligament prevented. Enucleation of the pus sac from below upward was then begun. In separating adhesions along the bottom of the left appendage there was a free escape of pus from the opening made into it by the vaginal incision, deluging the general peritoneal cavity with about 20 ounces of pus. The adhesions at the top of the left broad ligament were separated, the vessels clamped and the specimen removed. A finger was pushed into the vagina along the old incision track and the peritoneal cavity flushed out with large quantities of salt solution. Vaginal gauze drainage was instituted. The left appendage was found to be a large tubo-ovarian abscess; the right tube was thickened, but did not contain pus; the right ovary badly degenerated. Recovery.

I present this case as an example of the failure of vaginal incision for purulent collections in the uterine appendages; not that this procedure should not be employed, for I think it has a large field, but rather as evidence that such methods cannot be relied on to cure the conditions, and patients should not be influenced to expect such result. I do not understand why a physician calling such a condition a fibroid tumor should assume to have unusual diagnostic skill.

#### DISCUSSION.

**Dr. Fry** favored vaginal incision for pus in the pelvis. Dr. Bovée's objection to the method was that a second operation would later be required. This did not accord with Dr. Fry's opinion, as he had used the method many times and had seldom been obliged to subsequently open the abdomen. The result depended largely on the method of operating. If the abscess were merely punctured the opening would close too soon and the result would not be permanent; but if on the other hand a free section were made and one or two fingers passed up in the abscess cavity to break up partitions a cure would probably result. Although he anticipated no such trouble he always cautioned patients as to the possibility of a second operation. The advantages of operating from below were the small amount of danger and the absence of shock. In patients who were very weak this was often the only advisable method. Operating from the abdomen, on the other hand, was accompanied by danger in case of recent suppuration, on account of infection from the pus.

**Dr. J. Taber Johnson** agreed with Dr. Fry. When properly performed, vaginal puncture was surprisingly successful. The cut could not properly be described as a puncture; it was a gener-

ous incision. The operation, if necessary, could be completed from above. Many more patients recovered than one would expect. Operation from above was, however, somewhat risky and always difficult in badly adherent pus cases. He related a case of vaginal incision following abortion; curettment had been performed by another physician; sepsis occurred. A mass could be felt through the abdominal wall, but it could not be detected *per vaginam*; it was impossible to operate by vaginal puncture in this case and he did a laparotomy. The operation took two hours; the adhesions involved the appendix and intestines. Hence, the attendant circumstances should determine the choice of operation.

**Dr. Bovée**, in closing, said that when the accumulation of pus was located low in the pelvis where it could be easily reached from the vagina, and particularly if confined by the peritoneum alone, the only rational procedure was vaginal incision (not vaginal puncture) and drainage. But when the pus was contained in the tube or ovary, unless in very large quantity, this route was not advisable, but abdominal section with radical extirpation was best. Vaginal extirpation was practised, but he thought that by the suprapubic route cleaner surgery could be done. If the purulent salpingitis was from gonorrhoea, cure by vaginal incision was not probable. He could not agree with the previous speakers as to the advisability of separating adhesions with the fingers in vaginal incision for pus. The adhesions were formed to separate the general peritoneal cavity from an invading enemy, and he believed in religiously maintaining the barrier. Many patients were undoubtedly relieved by vaginal incision for pus, but his experience had been that fully 50 per cent. of them required later the abdominal section for relief. He had been obliged to do this in patients on whom the earlier speakers had made vaginal incisions, and he presumed they had had similar experiences with his cases. This did not support their views. The vaginal incision was not free of danger. The intestine might be opened and the vermiform appendix could not be dealt with, though much needing it in many cases.



THE TREATMENT OF CERTAIN INFLAMMATIONS  
OF THE PROSTATE, BLADDER AND KIDNEY.\*

BY EDWARD L. KEYES, JR., A. B., M. D.,

New York City.

The scattered subjects upon which I wish to speak are united by one bond of clinical sympathy, which is the presence of pus in the urine; and before describing in detail the treatment of any one of these inflammations I wish to insist that the one evidence to be relied upon in diagnosis, in prognosis, and in calculating the effects of treatment is the amount of pus in the urine. However quickly chronic gleet be checked or however quickly the dysuria of cystitis be dispelled the physician cannot consider the cure accomplished until all pus has disappeared from the urine; and conversely, however much a patient may whine about a gummy meatus or however bitterly he may complain of pain, if there is no pus in the urine the physician may appreciate that the inflammation—if present at all—is not one of those of which I am about to speak.

Let me open my remarks with the subject of chronic gonorrheal prostatitis; this is chronic gleet. Unfortunately since time immemorial it has been the custom—a custom reinforced in the last generation by the theories of Dr. Otis—to associate gleet with stricture. Gleet is indeed a symptom of stricture; nay, gleet is a constant symptom of organic stricture. And yet so much more common is the gleet of chronic prostatitis than that of stricture, so frequently is the gleet of stricture due to chronic prostatitis back of the obstruction and so constant is our failure to cure gleet by the use of sounds, that I must beg, without further discussion, to postulate the clinical fact that chronic gonorrhea, chronic urethral discharge, chronic gleet, is above all things else chronic prostatitis.

The reason for this is not far to seek. Enthusiastic urethroscopists—from whose number I beg to be excluded—dilate upon the subject of urethral glands and follicles until we picture a canal whose walls are honey-combed with crypts. Yet, as a matter of fact, the urethral walls are smooth enough compared to the prostate; for the prostate is a sponge, a million-mouthed sponge,

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\* Read before the Medical Society of the District of Columbia, March 11, 1903.

voracious of gonococci. Thus, if we stop to consider that practically every acute gonorrhea reaches the prostatic urethra and the prostate, that the gonococci find in the secreting structure of this gland their most congenial habitat, that once ensconced here they may remain virulent for years, we wonder not that chronic prostatitis is chronic gleet, but rather that this gleet sometimes ceases so spontaneously or yields so readily to treatment.

Thus in the treatment of chronic gonorrheal prostatitis we have to deal with a virulent enemy, the gonococcus, resident, inaccessible and fortified by areas of chronic inflammation, deep in the recesses of the prostate gland. Yet this inflammation can and does spontaneously subside. Here is the fact that is often overlooked in these days of vigorous local treatment. Since time was, these cases have been able to get well without medical aid, and even in spite of medical aid, in spite of caustic injections, in spite of urethrotomes and sounds. Naturally, then, the first question to be asked concerning a given case is, Will a spontaneous cure occur? the second, Will treatment hasten the cure? A positive answer may almost always be given to both questions. Yet in the matter of treatment it is well to be cautious, for ill-advised meddling has prolonged almost as many cases as judicious treatment has cured. In selecting treatment for a given case it must be borne in mind that a gleet which has lasted less than two months often gets well of itself and may habitually be cured by the local application of mild antiseptics, such as permanganate of potash, 1-4000; argyrol, 1-1000; or protargol, 1-1500—these solutions being injected into the bladder through a soft rubber catheter and urinated out by the patient.

But in marked contrast to the curability of these mild cases is the inveterate disposition of certain others. With type cases of this sort we are all familiar; they are men who year after year travel in a dull round from one physician to another, interspersing their serious efforts to get well with lapses into quackery and debauchery which usually leave them only the more chronic. Such patients repay a careful examination. Their general condition must be studied and all the resources of tonics and hygiene exhausted in their behalf. Moreover, their prostates and vesicles should be minutely investigated by rectal touch. This usually reveals a general congestive swelling of the prostate, or lumps of definite induration within or about the gland, their favorite loca-

tion being about the orifice of a dilated seminal vesicle. Such signs as these demand massage, applied twice a week, and of a firm, persuasive character, not too severe. But the most essential part of the local treatment is the hot rectal douche. This should be employed daily, whether masses of induration are to be felt or not. The effect of two quarts of hot water passing over these inflamed regions is more salutary than any other one form of treatment. This effect is not immediate nor obvious to the patient, who may well groan under the trial of the daily wash; but six weeks of rectal douching will often make curable a most intractable case.

The rectal douche does not often complete the cure, but it makes the case curable. To complete the cure, urethral irrigations are required, and these irrigations it is well to make rather strong, employing protargol as high as 1-200, or using instillations into the deep urethra of a few drops of protargol, one to 3 per cent., or silver nitrate, 1-1000 to 1-100, making the applications every second or third day, or allowing the patient to wash his own bladder every day with permanganate of potash, 1-4000. In all these maneuvers, asepsis and gentleness are prime factors, and sounds and urethroscopes are to be tabooed unless required by stricture. It may be good policy to allow the patient to control his urethral discharge with an astringent injection, but no curative effect should be expected from this, nor should the possibility of irritation from it be overlooked.

General treatment, by balsamics, alkalies and urinary antiseptics grows less useful as the case becomes more chronic, and in the same way alcohol and sexual intercourse, so harmful in the acute stage of the disease, are so little noxious to chronic cases that to forbid them, as one always prefers to do, may seem foolish to a patient who knows he may indulge himself with apparent impunity.

Local measures are thus our mainstay in the treatment of chronic prostatitis. Yet these may fail to cure. Such failure of local treatment after it has been faithfully employed for several months may be due to three causes. Either the patient's general condition is too poor to master the chronic catarrh, or the whole prostatic canal is in that cicatricial state known as contracture of the neck of the bladder, or the prostate is tuberculous. Of these three the first, a poor general condition, is habitually at fault.



This may best be overcome by sending the patient away for a vacation. I have known a trip across the Atlantic and back to break the obstinacy of a chronic prostatitis that had persisted for months in spite of every sort of local treatment. Of course the majority of our patients cannot afford the luxury of such a cure, and to these one can only offer the meagre encouragement of time and tonics.

A discussion of the two other causes of failure of local treatment, viz : tuberculosis and contracture of the vesical neck, would lead us too far afield. Suffice it to say of the former that it manifests itself by an increasing irritability under any local treatment, of the latter that it is characterized by frequent and imperative calls to urinate and is relievable by perineal cystotomy.

In striking contrast to the virulent gonorrheal prostatitis we have been considering is the non-venereal prostatitis which appears at a period of life when the gonorrheal epoch is some fifteen or twenty years past. While gonorrheal prostatitis usually appears in the third decade of life, this simple catarrh is common between the ages of 45 and 60. It does not come on with the rush of an acute inflammation, nor is it venereal in origin ; indeed, its causes are legion. Men who are peculiarly susceptible suffer month after month from an intermittent or a continuous prostatic catarrh, showing itself by a slight gleet and more or less distress on urination, while the urine is murky with pus. The causes that evoke exacerbations of this catarrh are the commonly recognized causes of exacerbation of the symptoms of prostatic hypertrophy, such as intemperance in food, in drink, or in sexuality, exposure to cold and wet, and urethral instrumentation. That hypertrophy of the prostate makes the gland more liable to catarrh is obvious enough ; yet one sees many cases possessed of no hypertrophy, though annoyed for years together by this catarrh.

In the treatment of this disease we have to face a different problem from that presented by chronic gonorrhea. Here is no virulent gonococcus, no mass of induration to be felt by rectal touch ; but on the other hand we are dealing with a prostate that falls ready victim to any infectious agent, a prostate whose low vitality is precisely the underlying cause of the inflammation, a prostate that may perhaps be toned up by hygiene and an out-of-door life, though it responds but feebly to local treatment, or worse still, rebels at any instrument.

In such cases as these it is wise to confine local treatment within the strictest limits. It is of course necessary to determine the presence of prostatic hypertrophy and residual urine, and to provide against these by systematic catheterization and bladder washing *secundum artem*; but if the bladder empties itself it is best to abstain from all local treatment, to place the patient in the best possible hygienic circumstances, to encourage out-of-door exercise, even horse-back riding, and to entrust his cure to the rectal douche and urotropin. The urinary antisepsis produced by this drug is peculiarly valuable in these cases, in that it supplies a constant antiseptic irrigation of the deep urethra without the slightest instrumental trauma. To this drug alone I can attribute the control of many of these cases. Yet in certain instances there is a strong neuralgic element which nothing but local treatment will control. This local treatment must then consist in instillations of silver nitrate, thallin sulphate, or protargol, the beak of the instillator being introduced only as far as the membranous urethra, so as to inject the fluid over the prostatic urethra without irritating it by contact of the instrument.

So much for chronic prostatitis. I wish now to call your attention to the treatment of chronic cystitis. Apparently the conditions are nearly alike; they show themselves chiefly by the exudation of pus, which appears in the urine, and yet clinically they differ in very many respects. Thus it is essential to regard chronic prostatitis as a clinical entity and to treat it as such; but chronic cystitis must be looked upon as always a secondary thing, as a result of something else, and to cure the cystitis it is that something else which must be attacked.

Thus chronic cystitis is caused by stone, by neoplasm, by tubercle, but most frequently by retention; and of the various forms of retention cystitis, prostatic cystitis is the type, since it discloses not only the possibility of radical treatment by removal of the prostatic obstruction, but also the various palliative devices which are so commonly elected as preferable to operative risk.

There are two forms of chronic cystitis encountered as the result of prostatic retention; the one, chronic alkaline or ammoniacal cystitis, often shows a malignancy and inflicts tortures so intense as to make it comparable to an acute gonorrhoeal cystitis; while the other, chronic acid cystitis, discloses itself only by cloud-

ing the urine with a fog of pus and bacteria, and produces almost no subjective discomfort.

The general lines along which both these inflammations must be fought are those of antiseptis and drainage, quite comparable to the treatment of any other infected cavity. Antiseptis is assured by two routes, from above by making the urine antiseptic, and from below by washing the bladder. Urinary antiseptis would doubtless still be extremely vague and empirical had we not fortunately stumbled upon an admirable drug, the ammonium salt of formaldehyd, sold under various trade names, such as urotropin, cystogen, aminoform, etc. This drug tends to make the urine acid and to liberate free formaldehyd in the acid urine, and practically proves a singularly efficient urinary germicide. Unfortunately it irritates the stomach slightly and the bladder considerably, so that it is often impracticable to administer more than a gram or two of it a day. But even in the smallest doses it is usually far more efficient than salol or benzoic acid, its closest rivals, in controlling bladder inflammation and preventing ascending renal infection. It should be employed throughout the course of a chronic cystitis as a background to more active measures.

The other form of urinary antiseptis, viz : irrigation of the bladder, is a field occupied exclusively by no one drug. Some sort of a daily wash is required by every chronically inflamed bladder, but the nature of the solution employed must vary according to circumstances. For mild chronic acid cystitis, a saturated solution of boric acid is ideal for the patient to employ. It is sufficiently active to control the inflammation and to prevent the occurrence of ammoniogenic infection, and sufficiently bland to be entrusted to the patient's own hands. But while mild acid cystitis is thus an inflammation to be palliated and put up with, virulent ammoniacal cystitis requires to be controlled by more vigorous measures. The silver salts are our strong weapons here, the selection of the salt being determined by the idiosyncrasy of the patient. Those I prefer are silver nitrate, protargol and argyrol. I cannot say which is the best. I only know that whichever one of them best suits the patient should be used daily as strong as can be conveniently borne, and the treatment carried on partly by the patient himself, partly under the physician's eye, in the hope of reducing the cystitis to its milder acid state controllable by boracic acid.

Such is the antiseptis applicable to chronic retention cystitis,



such the medicinal and palliative part of the treatment. In drainage we have the surgical and radical part. In the chronically inflamed bladder, as in all infected cavities, perfect drainage assures a prompt cure better than does any amount of antiseptis. But perfect drainage of a bladder the orifice of which is obstructed by a hypertrophied prostate is not so easy to obtain: in fact, in most cases it can only be obtained by removal of the obstruction, *i. e.*, by some form of prostatectomy or prostatotomy. The precise indication for operation in these cases, as well as the choice of operation, is a subject as yet so befogged by the conflicting views of so many opposed authorities that it were futile for me to take up the time with reasons for or against this, that or the other procedure. Suffice it to say that the chief indication for operation is the failure of palliative treatment, and that the principle upon which I prefer to base my surgical efforts is that the urethral orifice, elevated by the prostatic hypertrophy, must be lowered to where it can drain the bottom of the urinary reservoir. These plaster casts made from pathological specimens in my possession will suggest the manner in which the various forms of prostatic hypertrophy elevate the urethral orifice, and this instrument, Dr. Chetwood's galvano-prostatome, for employment through a perineal incision, is the one I chiefly employ in overcoming the obstruction, whether by prostatotomy or by prostatectomy.

Yet while this surgical drainage may often prove curative, in very many cases the dangers and discomforts of operation overshadow the dangers and discomforts of the disease. For such cases palliative drainage by systematic catheterization, though it will not cure chronic cystitis, is required to control it. The four cardinal principles upon which this catheterism must be conducted—that it must be aseptic, gentle, employed at regular intervals and as infrequently as the exigencies of the case permit—I need only mention.

But, to come to the last stage of my discourse, one of the most important features of chronic retention cystitis we have yet to consider. I refer to the so-called ascending pyelo-nephritis, the ominous "surgical kidney." Bitter experience has doubtless taught many of us how promptly the resistance to infection of the normal kidney may be overcome by stagnation of the urinary stream, and how virulently the resultant inflammation may attack and destroy the kidney and its possessor. The future of such

cases is obvious enough, and their treatment by diuretic waters, by urinary antiseptics, and perhaps, in desperation, by the knife, is one of the unhappy phases of urinary surgery. The proper treatment of such a condition is prophylaxis. The treatment of every case of retention cystitis implies a grave recognition of this constant danger to the kidneys, and it is to fortify these threatened organs that the administration of urotropin is most essential.

But I desire to call attention to a fact less obvious, though none the less important. It is that the acute, violent surgical kidney is comparable to violent ammoniacal cystitis, while there is mild acid pyelo-nephritis, the acid bacterial urine of which, though masked by the symptoms of cystitis, is none the less to be respected. Indeed, I venture to doubt whether acid retention cystitis, however mild, ever lasts two or three years without setting up a similar inflammation in the pelvis of the kidney. Clinically, the evidence of renal implication in the form of casts and a faint trace of albumin is discernible in practically every such case that one sees. Happily, urotropin taken with plenty of water to flush out the kidneys is a veritable specific for this condition, controlling it while the retention continues, protecting the kidney from more violent inflammation, and effecting a complete cure if the retention is relieved before grave interstitial nephritis has occurred.

This mention of mild retention pyelo-nephritis brings to my mind an instance of renal infection which may be of more general interest than those of which I have been speaking. Several years ago, a lady, a relative of mine, was pregnant for the first time. During the last two months or so of her pregnancy her urine constantly showed a faint trace of albumin and a few casts. The obstetrician in charge kept close watch of her condition; but as there was no evidence of renal insufficiency nor any increase in the amount of albumin the case was allowed to go to term. Just two days before labor began, the patient had a sharp chill followed by a temperature of 103; the next day a similar explosion, entirely unexplained and with no obvious ill effect upon the patient. The following day labor began and was very tedious, the first stage lasting more than forty-eight hours. The day after the birth of the child the mother's temperature was found to be over 101, (I have not the exact figures at hand) and there it stayed for several days, with a little afternoon rise. Meanwhile albumin and casts

persisted in the urine; the patient's general condition was excellent; I was much distressed at the mysterious complication, and the obstetrician was entirely nonplussed.

Affairs were thus at a deadlock, and bid fair so to continue, when my father, having learned the above details and inspected the patient, suggested that the trouble was doubtless an acute pyelo-nephritis, and if such was the case examination would doubtless reveal an acid, bacterial, albuminous urine. Accordingly the patient was catheterized, and the urine thus obtained was found to be acid, albuminous and swarming with bacilli. The patient was put upon urotropin and Suwanee spring water, and within twenty-four hours the temperature fell to 99; the next day it was normal and so remained. It took several weeks of urotropin in very high doses—three to four grams a day—to rid the urine of bacteria, and three or four months of less vigorous treatment to rid it of albumin and casts. Since then this lady has borne a second child without showing any symptoms of kidney disease.

I am no obstetrician, and this is the only case of puerperal pyelo-nephritis I have ever seen; hence it would be impertinent of me to offer any comment upon it. Yet I may say that the obstetrician in charge of the case, though very skeptical of its nature at the time, recently told me that, since this experience, he had so frequently encountered pyelo-nephritis during the later months of pregnancy that he had issued a standing order in the lying-in hospital of which he is the chief, "For unexplained fever administer urotropin and examine the urine."

#### DISCUSSION.

**Dr. J. Ford Thompson** said that the subject had been so well presented and so thoroughly considered that little opportunity was left for criticism. All surgeons see these cases, and treat them along the lines suggested by Dr. Keyes. He was glad that the doctor was conservative; the prevailing tendency was, perhaps, to operate too often for hypertrophied prostate. He favored all that Dr. Keyes had said about these three interesting conditions, and commended the instrument which he had exhibited. The two-glass test had the disadvantage that the patient was liable to keep doing the test himself, and thus be in a constant state of anxiety, and perhaps undergo unnecessary treatment. He had had several cases of chronic prostatitis following gonorrhoeal stricture, most of them being very obstinate. The acute cases



were often curable, and some even got well spontaneously ; others were very resistant. He could not see how the hot rectal douche reached the gonococci, which were located in the follicles of the gland, any better than any other injection ; it undoubtedly relieved the symptoms, but he did not understand how it could cure the patient. Local injections were efficacious in some cases, and failed utterly in others. Some cases were very discouraging.

**Dr. H. A. Robbins** commended the administration of urotropin in these cases ; he had used it successfully ever since it was introduced. Dr. Keyes had advocated its use in a paper read three years ago. Dr. Robbins' father, who was 93 years old, owed the prolonging of his life to this remedy.

**Dr. Behrend** asked Dr. Keyes how he gave the rectal douche.

**Dr. Crosson** asked Dr. Keyes to give his opinion as to the value of excision of the testicles in senile prostatitis.

**Dr. E. F. King** said that it should be borne in mind that good results could be had with urotropin only when the urine was acid. In an alkaline cystitis, salol or benzoic acid should be given and then urotropin would clear the urine of bacteria. He related a case of chronic cystitis that he considered most interesting. The man had a history of syphilis and gonorrhoea while in the German army. He presented himself for treatment in January, 1902, having a severe cystitis for which he had been treated by specialists in New York and Baltimore with only partial and temporary relief. Nothing seemed to be of permanent benefit. In despair he went to Paris during the following summer and placed himself under the care of Janet, but returned after two months not benefitted. During the late autumn months he had an attack of influenza, in the course of which a sore developed on the nasal septum which his family physician at once recognized as syphilitic and immediately ordered large doses of potassium iodide. The ulcer healed promptly and at the same time the cystitis began to mend, demonstrating conclusively its syphilitic origin.

Chronic bladder and prostate cases were often very discouraging ; many patients lost heart and gave up treatment before it had time to do them any good. In most cases also, the disease had become chronic before a physician was consulted ; the patients did not seek medical advice as early as they did for equally serious affections in other parts of the body.

**Dr. Wood** commended urotropin. He related a case in which he had used it with unusually favorable results. The patient was a woman ; the urine was loaded with pus, and she had been reduced almost to a skeleton. Under the use of urotropin she gradually improved, and eventually recovered, both from the cystitis and from pyelo-nephritis, from which she also suffered. He ascribed the result to the beneficial effects of the urotropin.

**Dr. Chappell** had used argyrol to good advantage. He had hoped that Dr. Keyes would say more about the remedy. Many

specialists extolled it as being superior to all other silver preparations.

**Dr. Bayne** heartily approved the treatment advocated by Dr. Keyes. When irrigation and palliative measures failed in chronic nephritis he obtained the best results from perineal section and drainage. It tended to prevent infection of the kidney.

**Dr. Banister** said that the most interesting and encouraging part of Dr. Keyes' paper was that in which he said that in looking over his case-books he had found the records of many patients who were not cured.

**Dr. Keyes**, in closing the discussion, thanked the Society for the attention given to the paper and the comments on it. He had spoken of puerperal pyelitis in order to bring out discussion of the subject, particularly by the gynecologists: he had hoped for suggestions, as it was well worth following up, and he did not know how frequent it was. He mentioned a case which had apparently been cured by urotropin.

He had not used argyrol enough to speak authoritatively about it. It was not irritating, and it was efficient in destroying gonococci; in one case it drove them from the patient's urethra in seven days. It failed, however, in another case.

He had never used perineal section in chronic cystitis merely for securing drainage. If, however, the constriction at the neck of the bladder was fibrous and would not admit the tip of the finger at the operation, perineal cystotomy was good treatment. He questioned whether it was indicated when the constriction was absent.

As to the reason for the value of the rectal douche, he could only say empirically that it did good. He used water as hot as the finger could stand. In his experience the patients were cured easier and quicker when the douche was used as preliminary treatment.

He had not used the gravity method mentioned by Dr. Hagner, and he knew of no especially favorable reports from those who had used it. He understood that its author had abandoned it. In acute cases it was liable to throw the antiseptic fluid up into the seminal vesicles and ejaculatory ducts and set up inflammation. It was fairly valuable in chronic cases. While there were objections to the two-glass method of diagnosis, it was practically the best.

As to the value of castration in prostatic hypertrophy, he was sorry to hear it mentioned as the popular operation here: it certainly was not in New York. His first experience with it was a dead failure and had set him against it, and he had condemned it strongly, believing it of no value. Very few, if any, cases of prostatic hypertrophy had been helped by castration.

## COMPLETE NEPHRO-URETERECTOMY.\*

BY J. WESLEY BOVÉE, M. D.,

Washington, D. C.

*Definition.*—By complete nephro-ureterectomy is meant the complete removal of the kidney and ureter at one attempt. The word “complete” is employed because a few operators have referred to nephrectomy with partial ureterectomy, and nephrectomy followed at a considerable interval of time with partial or complete ureterectomy, as being nephro-ureterectomy. As might be inferred, it is necessarily a unilateral operation, though it does not prohibit conservative surgery of the fellow organs. Yet in patients suffering from even slight impairment of the urinary function after removal of one kidney, it is considered a very dangerous predicament.

*History of the Operation.*—This, perhaps more than any other, is entitled to be called the *American* operation, inasmuch as the first four were performed by American surgeons. H. A. Kelly, so far as my thorough research shows, probably did the first complete nephro-ureterectomy, December 18, 1895. In the *Annals of Surgery*, 1897, XXVI, p. 364, McCosh, of New York, reported a case which he had presented at the meeting of the New York Surgical Society, May 12, 1897. He said the operation was performed about eighteen months previously, which would be about November 12, 1895. He had performed this operation on a man for tubercular kidney and a large perinephritic abscess. In a letter recently received from McCosh, he states that his operation was done in January, 1896.

As is shown by the accompanying table, the two operations by LeDentu and Morris are the only ones that have been done outside of the United States. Ten American surgeons have done the other fifteen operations.

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\* Read before the Medical Society of the District of Columbia, March 25, 1903.



TABLE OF RECORDED CASES OF COMPLETE NEPHRO-URETERECTOMY.

Date.	Operator	Sex.	Bacteriological examination of urine.	Diagnosis.	Route.	Result.	Reported.
1895. Dec. 18.	Kelly, H. A.....	F.	Tubercle bacilli found...	Tuberculosis of kidney and ureter.	Extraperitoneal.....	Recovery...	<i>Johns Hopkins Hospital Bulletin</i> , 1896-7, pp. 31-37.
1896.	McCosh, A. J.....	M.	No report.....	Tubercular kidney and large perinephritic abscess.	Extraperitoneal.....	Recovery...	<i>Annals of Surgery</i> , 1897, p. 364.
1896.	Kelly, H. A.....	F.	Negative .....	Renal tuberculosis.....	Combined extraperitoneal and vaginal, with short abdominal incision.	Recovery...	<i>Johns Hopkins Hospital Bulletin</i> , 1896-7, pp. 31-37.
1896. Sept. 28.	Baldwin, J. F.....	F.	No report.....	Tuberculosis of kidney and ureter and cystic ovaries	Transperitoneal for ureter and extraperitoneal for kidney.	Died .....	<i>Am. J. of Obstet.</i> , 1900, XLIII, p. 801.
1897. Sept. 21.	Morris, H.....	M.	No report.....	Tuberculosis of kidney and ureter.	Extraperitoneal.....	Recovery...	<i>Lancet</i> , London, 1898. I, p. 17.
1898. Feb. 8.	MacMonagle, B....	F.	Tubercle bacilli found...	Tuberculosis of kidney and ureter.	Extraperitoneal.....	Recovery...	<i>Trans. Am. Gyn. Soc.</i> , 1901, XXVI, p. 365.
Oct. 19.	Baldwin, J. F.....	F.	No report.....	Hydronephrosis and hydro-ureter.	Transperitoneal.....	Recovery...	<i>Am. J. of Obstet.</i> , XLIII, p. 801.
1899.	LeDentu, M.....	M.	No report.....	Papillomatous tumor at vesical orifice of the ureter.	Extraperitoneal.....	Recovery...	<i>Seminale Med.</i> , March 1, 1899.
1899.	Cathcart, R. S.....	M.	No report.....	Tuberculosis of kidney and ureter.	Transperitoneal.....	Recovery...	<i>Trans. Tri-State Med. Assn. Carolinas and Va.</i> , 1900, p. 272.
1899.	Ill, F. J. ....	F.	Tubercle bacilli found...	Tuberculosis of kidney and ureter.	Extraperitoneal and vaginal.	Recovery...	<i>Trans. Med Soc., New Jersey</i> , 1899, p. 83.
1899.	Pryor, W. R.....	F.	Tubercle bacilli found...	Tuberculosis of kidney and ureter.	Transperitoneal and vesical.	Recovery...	<i>Am. J. of Obstet.</i> , 1900, XLI, p. 470.
1899.	Noble, G. H.....	F.	Negative.....	Tuberculosis of kidney and ureter.	Extraperitoneal and vaginal.	Recovery...	<i>Am. J. of Obstet.</i> , 1900, XLI, p. 462.
1900. June 8.	Montgomery, E. E.	F.	Negative.....	Tuberculosis of kidney and ureter.	Extraperitoneal and vaginal.	Recovery...	<i>Trans. Am. Gyn. Soc.</i> , 1900, XXV, p. 299.
1901. June 8.	MacMonagle, B....	F.	Tubercle bacilli found...	Tuberculosis of kidney and ureter.	Extraperitoneal.....	Recovery...	<i>Trans. Am. Gyn. Soc.</i> , 1900, XXVI, p. 345, and private letter.
Jan. 31.	Baldwin, J. F.....	F.	No report.....	Tuberculosis of kidney and ureter.	Transperitoneal.....	Died.....	<i>Am. J. of Obstet.</i> , 1900, XLIII, p. 801, and private letter
1901. Mch. 18.	Bovée, J. Wesley...	F.	Negative.....	Calculus pyonephrosis and pyo-ureter.	Extraperitoneal.....	Recovery...	<i>N. Y. Med. J.</i> , Jan. 25, 1902.
1902. Nov. 7.	Bovée, J. Wesley...	F.	Tubercle bacilli found...	Tuberculosis of kidney and ureter and bladder.	Extraperitoneal and vaginal.	Recovery...	Not reported.

My first case of complete nephro-ureterectomy was reported at the meeting of the Southern Surgical and Gynecological Association, in November, 1901, and my second one is as follows :

*Tuberculosis of Right Kidney, Ureter and Bladder ;  
Complete Nephro-ureterectomy ; Recovery.*

Mrs. R. F., white, 34 years of age ; was seen October 24, 1902, in consultation with Dr. J. D. Bradfield. Her mother had died in labor and her father of congestion of the lungs ; two brothers had died from unknown causes ; has three brothers and four sisters, all in good health. She was a healthy child and made good recoveries from the ordinary diseases of childhood. Her first child was born 11 years ago and her last in August, 1894 ; had one miscarriage in 1899 from unknown cause. Since her first labor she has not been in robust health. Shortly after that labor an angular curvature of the spine began and has continued to the present. She has suffered with pain in her left lumbar region for several years. For about a year she has suffered intensely with pain in the left side, and painful and frequent micturition (as high as 40 times daily). Began menstruating at 14 ; periods occur every 24 days, are painless, scant, last 2 to 5 days, and the last occurred October 8. Pains are located in left inguino-lumbar region and in back. Examination reveals a large mass in region of left kidney which is connected with bladder by a long, hard ridge. She was sent to Columbia Hospital October 28, 1902. Between the time of her admission and the date of operation, November 7, 1902, her temperature varied from 98 to 103, and her pulse rate from 80 to 128. She was very much emaciated and had a slight hacking cough with respirations varying from 22 to 44. I had a number of doctors carefully examine her chest for evidence of pulmonary tuberculosis or other involvement, the results of which were negative. Dr. James Carroll, who made the bacteriological and pathological examinations in the case, failed to find tubercle bacilli in the slight expectoration she had, and on the 29th he examined a specimen of urine very carefully drawn from the bladder by catheter, and reported the presence of tubercle bacilli as positive. November 2, the urine was segregated with Harris' instrument after bladder irrigation. That drawn from the left side of the bladder showed tubercle bacilli and from the right, none. This process was repeated under chloroform on the 5th,

with similar results. On the 29th, the quantity of urine for 24 hours was 50 ounces, which was acid in reaction, of a pale yellow color and having a specific gravity of 1010, and containing 3 grains of urea to the ounce. Operation, November 7, 1902. Primary complete nephro-ureterectomy. An incision was made through the anterior vaginal wall to the ureter, which was loosened to its entrance into the broad ligament and was ligated next to the bladder and severed. Then through a loin incision about five inches long, running from the end of the false ribs toward the right anterior superior spinous process, I separated the kidney and the ureter to the brim of the pelvis, where it broke on slight traction and pus escaped from the upper end. Clamped vessels and severed and tied them, removing kidney and upper portion of ureter; then dissected the remainder of the ureter from above. A few peritoneal openings were made and immediately sutured. The lower end opposite ureter was slightly enlarged, but practically normal. Right kidney slightly prolapsed; uterus and appendages normal. Gauze drainage above and below. After operation her temperature gradually declined to normal, which point was permanently reached on the 17th of November. The pulse came down to 72 to 80, and the respiration, which had been notably rapid previous to operation, came down to 22 to 24, where it remained. For the 24 hours preceding operation the amount of urine was 32 ounces, and was of a pale yellow color, containing a slight sediment, was acid in reaction, contained a slight trace of albumen and  $4\frac{1}{2}$  grains of urea to the ounce. The usual microscopical examination revealed squamous epithelial cells, and nothing else of note. On November 10, three days after operation, the quantity was 27 ounces. The quantity of urea had increased to 16 grains to the ounce, and it contained a slight trace of albumen and blood. The quantity of urine on the 11th was  $24\frac{1}{2}$  ounces; on the 13th,  $21\frac{1}{2}$  ounces; on the 15th, 41 ounces; and on the 16th, 48 ounces. The urea was now but 7 grains to the ounce, and in addition to blood, the urine now contained a few pus cells. Tubercle bacilli were sought for by Dr. Carroll and not found. From this time until the 12th of January, 1903, when she left the hospital, the quantity of urine varied from 22 to 60 ounces per day, the variations being probably due to the usual influences in such cases, such as those of nervous origin, free purgation and variation in quantity of water ingested. On



December 2 and 12, and January 4 and 7, and again the middle of this month, Dr. Carroll examined specimens of the urine catheterized especially to avoid the smegma bacillus, and reported his inability to find the tubercle bacillus. After operation the bladder was irrigated daily for a number of weeks, and then every alternate day, which irrigation is still being continued by the patient. The urine now contains no pus, no albumen and no evidence whatever of bladder abnormality. There still remains, however, a considerable irritability of the bladder, most troublesome at night. By cystoscopic examination no inflammatory areas are noticed. The thickness of the bladder wall and of the lower end of the right ureter is absent. Her weight has increased from 104 pounds, a few months before operation, to 108 pounds. She states, however, that her loss of flesh was great during the few weeks before operation, and that her weight was probably but little above 90 pounds just before that ordeal.

*Indications.*—It will be seen from my table of seventeen cases that tuberculosis of the kidney and ureter was the indication in fourteen of them. In the other three, papillomatous tumor of the vesical end of the ureter, hydronephrosis and hydro-ureter, and calculous pyonephrosis and pyo-ureter were the morbid causes for which the operation was done.

Whether removal of the kidney and ureter for papillomatous tumor of the vesical end of the ureter is a proper procedure will be a question calling for settlement in each case of the kind, except when a considerable portion of the lower end of the duct is involved. The nature of such a growth in its structure is very likely to be malignant, and therefore calls for a very radical operation. But in early cases it would seem that a resection of the lower portion of the ureter with an adjoining portion of the bladder would suffice. In an intermediate class a considerable portion of the lower end of the ureter might be removed, and anastomosis with the bladder or the opposite ureter effected. When retention of the urinary function of the affected side is especially desirable, implantation of the ureter on to the bowel or on to the skin, might be indicated, but possibly these plans of disposal of the ureter are very hazardous, as ascending infection to the kidney usually follows. Such procedure would, however, be a necessity when the renal function of the opposite side is absent: from congenital

absence of the kidney, extirpation of it, permanent obstruction of the ureter or other cause.

In hydronephrosis and hydro-ureter other methods of treatment would seem to be preferable. Generally, in such cases at some point low in the ureter, obstruction exists for which search should be made and a proper remedy applied. A lodged calculus, a constriction or an angulation may be found. In many cases pressure on some other structure is the cause of the obstruction, and if such pressure be removed, the kidney and ureter may not be disturbed. The nearer the bladder the obstruction is, the more easily suitable plastic surgery may be applied. On the other hand if the obstruction be higher in the duct, the less becomes the necessity for complete extirpation of the ureter. In calculous pyonephrosis with pyo-ureter extending well to the bladder no procedure less than complete extirpation can be relied upon to effect a complete cure. In many such cases, however, conservative methods are justifiable. It will be seen from the table that the localized tuberculosis involving practically all the ureter as well as the kidney is the indication for the operation in 82 per cent. of the cases. In 10 cases the search for the tubercle bacillus was reported as having been made, and in four of these without success. Yet in every one the diagnosis from examination of the removed specimen is positive. Whether any of the ureter should be left in nephrectomy for kidney tuberculosis is doubtful. If the infection be ascending, there can be no doubt, provided its removal is not incompatible with the recovery of the patient. If it be descending and no evidence of much involvement of the lower end be present, a better chance for speculation is afforded. The number of partial and complete secondary ureterectomies for tubercular ureter would alone seem to prove the logic of this rule.

Tait (10) removed a tubercular kidney from a man, July 8, 1898. December 5, 1898, he removed 12 cm. of the ureter for tubercular ureteritis; July 2, 1899, as a fistula connected with the retained portion, he removed the remainder of the duct. Meyer (5) reports having to do a complete ureterectomy for chronic suppurative ureteritis in a case in which,  $4\frac{1}{2}$  years before, another surgeon had done nephrectomy for pyonephrosis. This case was probably tubercular. I did a secondary ureterectomy under practically the same conditions (2). Reynier's (9) case was more like that of Tait's. In fact, in a respectable proportion

of successful nephrectomies for tuberculosis of the kidney, subsequent ureterectomy for tubercular ureter has had to be done. Even removal of a portion of the bladder or the whole of it may be necessary in extreme cases. In considering such radical procedure, one must be certain that the tubercular process is not present to any extent in other portions of the body, which is often the case, in order to insure the justifiableness of such a grave procedure. Opportunity for rare good judgment is afforded when marked tuberculosis is present in the kidney and ureter of one side, and evidence of a slightly similar involvement of the other side is present. Only after a careful study, for a number of days, of the urine from the two sides, separately, can such a decision be reached, and under no considerations will such an operation be justifiable until the condition of the opposite kidney be learned, except when the function of the involved kidney is beyond doubt permanently suspended. This feature simply leaves out of consideration the part taken in urinary excretion by this kidney, and even in this exceptional class the function of the only acting kidney may be so feeble as to preclude nephro-ureterectomy.

The conditions calling for complete nephro-ureterectomy are malignant disease of the uterus, severe traumatic injury throughout most of the course of its duct, and multiple marked ureteral stricture from ureteritis. It is only in early cases of malignancy of these structures that a successful result of the operation can be expected. In multiple strictures of the ureter it will be necessary to consider the advisability of doing some form of ureteroplasty rather than extirpation. Multiple resection or dilatation may be in certain cases preferable. If the side involved be the only one excreting urine the function of the opposite kidney being hopelessly lost such plastic work must of course be preferable. When the tubercular process involves the bladder, particularly if from descending infection, irrigation may be relied upon to successfully combat its progress. In my own case it has been successful. Other observers have reported like results. It is well to remember that renal calculi occasionally exists in tubercular kidneys. Such cases have been reported. It is interesting to note that but 4 of the 17 cases were in males.

During the past few years cryoscopy of the blood for purposes of prognosis has come into vogue. Van t' Hoffe and Rault found out that blood and other fluids freeze at a lower point in propor-



tion to the quantities they contain of impurities dissolved in them. Koranyi, applying this law to blood and urine, showed that normal blood possesses a freezing point of 0.56 C. below that of distilled water, which forms the zero of that thermometrical scale. From this point it is not varied more than .01. Various German and French writers have applied his observations to the study of abnormal blood. They have found that so long as the blood is healthy and its effete constituents adequately eliminated it retains its normal freezing point, never varying more than .02. But if the elimination becomes defective, the freezing point sinks to  $-0.58$  or even to  $-0.60$ . Kümmell found in 77 cases of renal insufficiency the freezing point of blood varied from  $-0.58$  to  $-0.81$ . The majority of cases show  $-0.60$ . According to Kümmell when the freezing point is  $-0.58$  or  $-0.59$  renal sufficiency is incomplete. But yet nephrectomy may be performed without too great danger. The one kidney while not entirely healthy is yet capable of performing the duties of its excised fellow. When the freezing point of blood is more than  $-0.59$ , nephrectomy is contraindicated. In 50 operations on the kidneys and ureters, he established the freezing point of the blood. In all these cases the correctness of the cryoscopic data was established by the results of the operations. Six of these cases were hydronephrosis, all of which recovered. In one of them the freezing point was  $-0.60$ , and nephrotomy was done. The freezing point became  $-0.58$  and the diseased organ was successfully removed. Fifteen of them were pyonephrosis; in one of these the freezing point was  $-0.59$  and the convalescence was much disturbed by insufficient excretion of urine, albuminuria and collapse. In three patients in whom the freezing point of the blood was  $-0.60$  and lower, two were subjected to nephrotomy successfully. In 14 cases of renal tuberculosis, the freezing point was  $-0.56$  in 11,  $-0.54$  in one,  $-0.55$  in one and  $-0.60$  in the other. In this last case there was disease of both kidneys which were incised and pus evacuated, and the patient died eight weeks later. In the other 13 cases the disease was unilateral and successful nephrectomy was done. In two cases of renal tuberculosis,  $-0.63$  and  $-0.64$  were found. The disease was bilateral and operation was refused because of renal insufficiency. I have not employed this valuable method in my work. There is no question in my mind, however, as to its value.

The apparatus of Beckmann for determining the freezing point of blood and other secretions would seem to be simple and easily used. It consists of a large test tube set in a vessel containing ice and salt. Through a perforated cork placed in the mouth of the first tube, a second and smaller test tube is inserted. This leaves an air space between the two tubes. The fluid to be frozen is put in the inner tube. A special thermometer is used which has as zero the freezing point of distilled water; the freezing point of blood and other fluids is easily determined by the use of the thermometer. The employment of this method, together with urine segregation by ureteral catheter, or bladder segregator, combined with careful analysis, should furnish a vast deal of information upon which to base diagnosis and prognosis in complete nephro-ureterectomy.

*Routes.*—Complete nephro-ureterectomy has been done by the extraperitoneal and transperitoneal routes. Various modifications of them have been made by different operators because of the exigencies of the particular case, or improper diagnosis, and possibly from unfamiliarity with the reports of other operators. The loin extraperitoneal route has been followed in 7 cases and various modifications, such as a vaginal incision to liberate and perhaps remove the lower portion of the ureter, were done five times by Noble, Montgomery, Ill, Kelly and myself. Ill made a second incision through the *linca semilunaris* just above the pubes. In the cases of Noble, Kelly and Ill, the vaginal portion of the operation followed the loin incision; while in Montgomery's and my last case, the operation was begun by the vaginal route. This plan I had believed to be best, and when I saw Montgomery do it, although he failed to ligate the bladder end of the ureter, I was convinced. Accordingly I proceeded in that manner in my last case, and had very little difficulty in ligating and severing the ureter and freeing the broad ligament portion of it. The other 5 cases were done by the transperitoneal route. In one, Baldwin removed the ureter by this and the kidney by the extraperitoneal route. Pryor inverted the lower three quarters of an inch of the ureter into the bladder, and held it in that position by means of a probe passed through the bladder and urethra, the eye of which was sutured to the ureter; the probe was then bent over the pubes with proper gauze covering. He says that the ureter sloughed and the sound was withdrawn in three weeks.

As I have shown that this operation is done in 82 per cent. of cases for tuberculosis of the kidney and ureter, it would appear very unreasonable to go across the peritoneal cavity in doing it. The possibility of contaminating the peritoneum with tubercular pus would be considered dangerous. No doubt the operation is more easily performed by this route. One must decide between the ease of operation and the danger to the patient in any operation, and certainly he must sacrifice the ease to the patient's welfare. In the extraperitoneal operation, particularly when combined with the vaginal, a long loin incision will not be necessary. The one, nearly transverse, as made by Montgomery, was short and gave him ready access to the kidney and ureter. No doubt the difficulty of freeing the broad ligament portion of the duct through the loin extraperitoneal incision is considerable. This is referred to in the reports of Kelly and Noble, by McMonagle in a private letter, and by myself. Drainage, often a necessity after this operation, is materially enhanced by gauze passed downward into the vagina. I am prepared, therefore, to recommend the operation being begun by the vaginal route in all cases in the female in which complete nephro-ureterectomy has been previously determined. If this be done, the incision for nephrectomy will usually be found sufficient for the removal of the duct in addition.

*Technique.*—In tuberculosis of the kidney and ureter, the strictest care is necessary to prevent contamination of normal structures. That virulent organisms other than the bacillus of tuberculosis may be in the pus should be remembered. It is well to remove the kidney and ureter *en masse* when possible, liberating the kidney first, care being taken that leakage from the cut end of the ureter does not occur. In favorable cases, if thought advisable, the ureter may be divided between clamps at any point where distension is not marked. Whether pus be present or absent, drainage should be employed, as not to do so is to invite at least the accumulation of a large amount of serum in the extraperitoneal space made in the operation.

Unless the bladder portion of the ureter is much infiltrated, urine will not be forced from the bladder through this portion, and therefore ligation is unnecessary. In other cases this ligation is a necessity, if complete removal of the bladder portion is not the best plan. Jacobelli (4) has found by experimentation that a very strong



pressure is needed to produce this form of leakage. We should also remember that but two cases of ureterectomy, those of Meyer (5) and Hartmann (3), in which such leakage has occurred, have been reported. A number of operators mention the necessity of doubly ligating the uterine artery and severing between, but as a rule this should not be necessary. Yet Kelly, MacMonagle and Ill had to do this in their cases.

*Results.*—When tuberculosis involves one kidney and descends to the bladder, even though cystitis, with or without thickening of the bladder wall, be present, complete relief following nephro-ureterectomy may be expected. The absence of tubercle bacilli from the urine should soon be noted, although some of the New York surgeons claim they commonly remain for many months. I would in such an event feel justified in examining the urine direct from the remaining ureter. If cystitis remain, bladder irrigation is imperative and even cauterizing small tubercular ulcers in the vesical mucosa may be necessary. This treatment should be instituted promptly after operation. If the disease involves the opposite kidney or ureter, even but slightly, we can hardly hope for a cure. But these cases are very much improved by gentle outdoor exercise in a proper atmosphere. In operations for other conditions except malignancy complete cure may be expected.

*Mortality.*—Of the 17 cases compiled, but two (11.76 per cent.) ended fatally, and these are reported by the same operator. Undoubtedly they were severe cases with probable involvement to some extent of the remaining kidney in each case, as is to be inferred from both deaths being from renal insufficiency. For an operation so severe, and done under such critical conditions, its success is far greater than might be expected. It may reasonably be predicted that even a smaller death rate may be expected, since increased experience in any operation usually brings greater success. In this relation it may be well to consider the mortality rate of nephrectomy. Pousson (7) found in 600 cases of nephrectomy for tubercular kidney, 128, or 21.33 per cent. died, and in 134 cases under his observation 12 died—a death rate of 8.95 per cent. Albarran (1) reported 26 cases of nephrectomy for tubercular kidney with one death, 3.8 per cent. mortality rate, and one death in 14 nephrotomies, 7.14 per cent. for the same condition. Ramsay (8) found that out of 191 cases of nephrec-

tomy for tubercular kidney, 37 died within one month, a death rate of over 19 per cent., and in 49, in which nephrotomy was followed by nephrectomy, 18, or 36.7 per cent., died within one month. In the Roosevelt Hospital from 1890 to 1898, 32 nephrectomies, with six deaths, or 19 per cent., were reported. I refer to these statistics of nephrectomy for tuberculosis of the kidney only to demonstrate how comparatively successful has been complete nephro-ureterectomy.

1. ALBARRAN.—*Bull. et. Mem. Soc. de Chir. de Paris*, 1900. XXVI, p. 549.
2. BOVÉE, J. WESLEY.—*J. Am. Med. Asso.*, 1900. XXXIV, p. 970.
3. HARTMANN.—*Rev. de Chir*, Paris, 1897. XVII, p. 1046.
4. JACOBELLI.—*Riforma Medica*, Palermo, Italy, Jan. 4, 1901, p. 27.
5. MEYER.—*Med. News*, New York, 1900. LXXXVIII, pp. 448-454.
6. PILCHER, L. S.—*Annals of Surgery*, 1900. XXXI, p. 100.
7. POUSSON.—Thirteenth International Congress of Med., Paris, 1900. Report on the Section of Urinary Surgery, Paris, 1900, p. 125.
8. RAMSAY, O. G.—*Ann. Gyn. & Ped.*, 1900. XIII, p. 581.
9. REYNIER.—*Bull. et Mem. Soc. de Chir, de Paris*, 1893, n. s. XIX, pp. 102-112.
10. TAIT.—*J. Am. Med. Asso.* 1900. XXXIV, p. 979.

#### DISCUSSION.

**Dr. Vaughan** said that he had never performed the operation.

**Dr. F. R. Hagner** reported a case in which the right kidney was slightly enlarged and the left apparently normal. No tubercle bacilli were found.

**Dr. J. Ford Thompson** reported a case in which he had operated 15 years ago.

**Dr. Abbe** asked how diagnosis of disease of the ureters was to be made.

**Dr. G. B. Miller** reported a case. The urine contained many tubercle bacilli.

**Dr. Bovée**, in closing, said that a sensation as if a large cord was being rolled beneath the fingers was an important diagnostic point in tubercular disease of the ureters. The operation was more easily performed in the male than in the female. He was opposed to catheterization of the ureters in the presence of infection of the bladder.

## CASE OF APPENDICITIS.\*

By S. S. ADAMS, A. M., M. D.,

Washington, D. C.

A white boy, age 12, was first seen by Dr. Adams in December, 1902; two days afterward a diagnosis of mastoid abscess was made and an operation was performed by Dr. Hyatt. The sinus was exposed at this operation. For the first 48 hours the temperature was normal; it then rapidly rose and another sac was opened and drained. Symptoms of sepsis developed, probably caused by absorption by the sinus. The boy, however, recovered and remained well until March 8, 1903, when symptoms of appendicitis appeared. The temperature rose rapidly to 103, and the pulse to 120. By 11 A. M. of the 9th his condition was so bad that Dr. J. Ford Thompson refused to operate; but he improved somewhat, and Dr. Thompson removed the appendix on the morning of the 10th. It had the appearance of a double appendix, and was gangrenous; two or three ounces of pus escaped from it.

**Dr. Balloch** said that the case presented by Dr. Adams opened up a question of great pathological importance, namely, that of the persistence of pyogenic micro-organisms in the blood after the apparent healing of the suppurating focus. His attention had been drawn to this matter by a case in his own practice. A man struck his head against a hanging lamp, causing a superficial abscess in the scalp. This healed in a short while. About two months thereafter he injured his leg. There was no break in the skin and no external sign of injury; there was, however, much pain. In ten days there was evidence of deep suppuration and an incision released a large quantity of pus from a deep abscess. In thinking over the case he was unable to explain the suppuration except on the theory of the persistence in the blood of micro-organisms from the abscess in the scalp. In looking up the literature he had found that some work had already been done along this line in an experimental way, enough in fact to make it practically certain that pyogenic organisms do persist in the blood for a very considerable time after the healing of the original focus. The question is one extremely hard to demonstrate experimentally owing to the fact that the micro-organisms are very few in number and it is difficult to get enough blood to make a conclusive search for them or to get a culture which shall contain them. Their presence in the blood has, however, been demonstrated at varying

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\*Reported with specimen to the Medical Society of the District of Columbia, March 11, 1903.



periods after the healing of the original abscess. We must assume this persistence in order to explain some cases of osteomyelitis. Here we have an injury to a bone, which may be of the very slightest character and yet be followed by the setting up of an abscess. The closest search may fail to show any focus whence the pyogenic cocci could have come. We must assume that the organisms were in the blood at the time of the bone injury and that they were carried to and lodged at the point of injury. Careful inquiry may elicit the fact of the existence of an abscess weeks or months before.

The question was one of practical interest and importance and must be answered in the affirmative.

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## REPORT OF EDITORIAL COMMITTEE FOR 1902.\*

WASHINGTON, D. C., *Feb. 18, 1903.*

*To the Medical Society, D. C.:*

The Editorial Committee submit the following report for the year 1902:

This committee was appointed Jan. 15, 1902, and made a report Feb. 12, recommending that the Society publish its Proceedings in the form of a periodical, stating that a bimonthly periodical of 64 pages, making 384 pages for the year, could be published for about \$600.00 a year.

The report and recommendation were referred to the Executive Committee, which reported back Feb. 19, also recommending the publication and limiting the cost for the year to \$600.00, as estimated. The Society adopted the report.

The Editorial Committee has accordingly superintended the issuance of six numbers of a bimonthly journal, the WASHINGTON MEDICAL ANNALS, completing the first volume.

The committee is pleased to acknowledge many complimentary remarks on the ANNALS in exchange journals, and to note also that abstracts have often and entire articles have sometimes been reprinted by these journals. From our November issue three abstracts appeared in one number of *American Medicine*, and three also in one number of the *Journal American Medical Association*. Members will be interested to know that the cases reported to the Society from time to time are considered of sufficient value to be indexed by the Surgeon General's Library.

Several essays and minor contributions were not received for publication; some of them have been or will be published elsewhere. In some cases the committee has found it necessary to have manuscript rewritten or typewritten before it could be handled by the printer, and this has caused an extra and unneces-

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\* Reported to the Medical Society of the District of Columbia, February 18, 1903.

sary expense and labor. The committee also asks attention to the delay on the part of some members in returning promptly to the secretary the record of discussions sent to them for revision; this failure delays by so much the work of the committee.

If a sufficient advertising patronage were obtained, or if the Society were willing to incur the expense, the scope of the journal could be enlarged to include abstracts from the exchange journals.

The cost of printing and distribution for the year 1902, including typewriting, engraving and a few reprints furnished gratuitously to persons invited to address the Society, was \$813.86; and for the necessary stationery, including billheads, letter heads, envelopes, wrappers, subscription blanks, circulars, advertising contracts and postal notices, was \$43.75; total, \$857.61.

The total paging amounted to 497 instead of 384, as estimated, with, of course, a corresponding increase in expense.

The well-known ruling of the Post Office Department in regard to second-class matter has made the cost of mailing the journal greater than we had hoped; but the committee has succeeded in having most of the copies distributed by messenger at the rate of two cents apiece, which is the minimum rate of postage.

The committee has received from subscriptions, \$15.00; from advertisements, \$84.00; and from sale of copies of the journal, \$2.60; total, \$101.60. Adding this \$101.60 to the \$600.00 set apart by the Society, and deducting the sum from the cost of the journal, there is left a balance of \$156.01, apparently a deficiency. There is, however, yet due for advertisements, \$184.00, which more than covers the deficiency,

The experience of 1902 seems to show that the annual cost of publication, including the necessary stationery, will be about \$825.00, and that advertisements can be obtained to the amount of \$300.00 or more a year. In fact, the committee sees no reason why with the coöperation of the members generally, the advertising patronage should not cover the entire cost of publication, even with the scope of the journal enlarged. The committee returns its thanks to those members who did take a personal interest in the matter and helped to secure some of this patronage.

D. S. LAMB,  
W. A. WELLS,  
V. B. JACKSON,  
*Committee.*

## PROCEEDINGS OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

**Wednesday, February 18, 1903.**—The President, Dr. Kober, in the chair. Over 41 members present.

Dr. D. S. Lamb, Chairman of the Editorial Committee, made report for the year 1902. The report was accepted, and the thanks of the Society extended to the Committee. See page 139.

A communication from Dr. Arthur MacDonald, asking the members of the Society to use their influence to secure the passage of "the laboratory bill to study the criminal, pauper and defective classes," was referred to the Executive Committee for such action as might be deemed advisable.

The following cases and specimens were presented :

By Dr. J. Taber Johnson : Uterine fibroids. Discussed by Drs. A. F. A. King and Bovée. See page 77.

By Dr. D. S. Lamb : 1. Dentigerous cyst of jaw. Discussed by Dr. McCormick. See page 76. 2. Fissure of the sternum in a man.

By Dr. Bovée : Tubo-ovarian abscess. Discussed by Drs. Fry and J. Taber Johnson. See page 112.

Dr. C. W. Richardson, in connection with his paper (*infra*), exhibited three patients on whom he had operated successfully for cerebral abscess.

Dr. Magruder, Chairman of the Executive Committee, stated that the bill relating to reporting cases of minor contagious diseases had been carefully and favorably considered. The matter had already been taken up by the Senate Committee and would be favorably reported. Members of the Society having influence with members of the House Committee were requested to aid in securing the passage of the bill. He also gave notice of the complimentary dinner to be given to Mr. Moore, and furthermore stated that the bill providing for medical inspectors for the public schools was now in conference.

Dr. Richardson read the paper of the evening. Subject, "Atrophic Rhinitis." Discussed by Drs. Castelli, McKimmie, Dye and J. P. Miller. See page 81.

**Wednesday, February 25.**—The President, Dr. Kober, in the chair. Over 36 members present.

Dr. S. S. Adams showed a cerebellar tumor from a case which had been presented to the Society in 1902. Discussed by Drs. Acker, D. S. Lamb, Butterfield, D. W. Prentiss and Franzoni. See page 78.

Dr. Reyburn read the essay for the month : "The Uses and Abuses of Bloodletting in the Practice of Medicine." Discussed by Drs. T. C. Smith, C. W. Brown, Castelli, S. S. Adams, Wood-



ward, E. L. Morgan, McCormick, Forsythe, R. S. Lamb, Gibson, Acker and Ross. See page 63.

**Wednesday, March 4.**—The President, Dr. Kober, in the chair. Over 50 members present.

Dr. Woodward, for the Executive Committee, gave notice of the complimentary dinner to Mr. Moore, and asked members to notify Dr. Magruder of their intention to be present. The dinner would be given at the Shoreham, on Thursday evening, March 12.

Dr. Neff read a paper on "Multiple Fistulae of the Perineum, with report of a case." Discussed by Dr. Balloch. See page 96.

Dr. R. S. Lamb read a paper on "A Consideration of the Liver as a Factor in Disease." Discussed by Drs. A. F. A. King, Kober, S. S. Adams, Bishop and Chappell. See page 99.

Dr. D. S. Lamb exhibited photographs of a remarkable case of cancer of the liver. The organ weighed  $33\frac{1}{2}$  pounds.

**Wednesday, March 11.**—The President, Dr. Kober, in the chair. Over 67 members present.

Dr. Magruder, for the Executive Committee, made the following report which was adopted.

"The Executive Committee respectfully submits the following statement relative to the status of legislation in which the Medical Society was interested at the adjournment of the 57th Congress on the 4th instant.

"Through the activity of the Executive Committee the enactment of legislation providing for the MEDICAL INSPECTION OF SCHOOLS was furthered and the legislation enacted was framed so as to place the physicians to be employed in that service under the supervision of the Health Department and not under the supervision of a lay board.

"A proposed amendment to the District Appropriation bill providing for the introduction of aluminum sulphate into the water supply of this city prior to its purification by SLOW SAND FILTRATION was actively opposed by the Executive Committee. The fact that it was not enacted may, it is believed, be charged, to a certain extent at least, to such opposition.

"Proposed legislation tending to disorganize if not to destroy the existing system of FOOD INSPECTION under local authority was opposed by the Executive Committee in so far as it was believed to threaten injury to the methods of food inspection now in force. This legislation failed however, in its entirety.

"In view of a decision made by corporation counsel during the latter part of the recent session of Congress under which any person is at liberty to INSPECT THE RECORDS OF BIRTHS AND OF DEATHS in the HEALTH DEPARTMENT without reference to the use to which the information thus obtained is to be put and with-

out reference to the absence of tangible interest by such person in said records, the Executive Committee secured the introduction into both houses of Congress of bills limiting the right to inspect such records to persons having legitimate interests therein and forbidding the use of such records for advertising purposes. The committee regrets, however, to report that these bills remain in the committees of the two houses at the close of the session.

"The Executive Committee regrets to report that the bill requiring householders to report the presence of cases of MEASLES, WHOOPING COUGH, CHICKENPOX AND EPIDEMIC CEREBRO-SPINAL MENINGITIS was not enacted. It was, however, favorably acted upon by the Senate District Committee.

"The attention of the Society is invited to the fact that the law regulating the COMMITMENT OF LUNATICS enacted in 1899, by which physicians were appointed to examine alleged lunatics prior to their commitment, was repealed by a proviso inserted in the body of the recently enacted general deficiency bill. Procedure looking to the commitment of alleged lunatics will be the same as that in force prior to the enactment of the legislation above referred to, that is, trial by jury without expert medical evidence and without compensation to medical witnesses other than that allowed ordinary lay witnesses."

The following cases and specimens were presented :

By Dr. Hasbrouck : Carcinoma of liver.

By Dr. D. S. Lamb : Cancer of the liver.

By Dr. S. S. Adams : Appendicitis. Discussed by Dr. Balloch. See page 138.

Dr. Edward L. Keyes, of New York, read the paper of the evening: "The Treatment of Inflammations of the Prostate, Bladder, and Kidneys." Discussed by Drs. J. Ford Thompson, F. R. Hagner, H. A. Robbins, Behrend, Crosson, E. F. King, Wood, Chappell, Bayne and Banister. See page 115.

**Wednesday, March 18.**—The President, Dr. Kober, in the chair. Over 64 members present.

Dr. Chappell, for the Committee on Public Health, offered the following resolutions :

1. That the Committee on Public Health is hereby authorized to use its best efforts to obtain the enactment of a law which shall prohibit SPITTING UPON THE SIDEWALK by persons in the District of Columbia.

2. That the Medical Society of the District of Columbia hereby endorses the proposed action of the Honorable Commissioners of the District of Columbia in promulgating a police regulation which shall prohibit spitting upon the sidewalk by persons in the District of Columbia.

The resolutions were adopted.

Dr. Magruder for the Executive Committee made the following report :

"The Executive Committee, to which was referred the report of the Librarian recommending the establishment in the public library of a reference medical library, begs leave to state that it has carefully considered said report and respectfully recommends that it be adopted by the Society and that a committee be appointed to see that, if possible, the recommendations contained therein are carried into effect.

"The Executive Committee respectfully reports that the DINNER tendered by the Society to Mr. CHARLES MOORE, the retiring clerk of the Senate District Committee, occurred on the 12th instant and was attended by the following gentlemen :

"Mr. Charles Moore, Doctors Acker, S. S. Adams, Bovée, Burnett, Cook, de Schweinitz, Donoghue, Friedrich, French, Hickling, E. L. Keyes, Jr., of New York, E. F. King, Kober, R. S. Lamb, Lee, McLaughlin, Magruder, Marshall, Moran, F. P. Morgan, Pickford, A. B. Richardson of the Government Hospital for the Insane, C. W. Richardson, J. W. Ross of the Navy, Sowers, Sprigg, Woodward, and Wyman of the Marine Hospital Service."

The Committee recommended that the present Committee on Library be directed to carry out the project. The recommendation was adopted.

Dr. C. W. Richardson spoke against the practice of some Washington physicians sending their patients to Johns Hopkins Hospital for operation. He cited instances in which the Hopkins physicians had not only failed in diagnosis and treatment, but in addition had openly ridiculed the correct diagnosis of men who had unfortunately turned patients over to them. Dr. Richardson's remarks were endorsed by Dr. Hasbrouck, who cited other experiences of the same kind.

The following cases and specimens were presented :

By Dr. Snyder : GUNSHOT WOUND OF HAND.—A boy was accidentally shot in the palm of the hand with a 12-bore shotgun loaded with number 8 shot. The charge passed through his hand, tearing away the greater part of its dorsal portion. The boy went first to the hospital for amputation, but fortunately was sent to Dr. Snyder's office, where the wound was cleaned and dressed ; it ultimately healed perfectly, and the hand and most of its usefulness were saved. Dr. Snyder exhibited the patient to illustrate the favorable result which was obtained from conservative surgery ; and also X-ray photographs, showing the extent of the injury.

By Dr. D. S. Lamb : 1. Cerebral hemorrhage in right basal ganglia.—From a man, age 46, laborer. Was in hospital 22 days ; was extremely emaciated ; had paralysis of left side ; pupils unequally dilated ; general anemia ; some atheroma of mitral valve and ascending aorta.

2. Stricture of rectum and tubo-ovarian cyst. See page 110.



By Dr. Behrend: Decidual haematomata. See page 111.

By Dr. Bovée: Specimens illustrating the admirable results of the use of the Downes' electric angiotribe. See page 109.

Dr. W. C. Gorgas, U. S. A., read the essay of the evening. "The Yellow Fever Work in Havana." Discussed by Drs. A. F. A. King, S. S. Adams, and Woodward.

**Wednesday, March 25.**—The President, Dr. Kober, in the chair. Over 33 members present.

Dr. D. S. Lamb's specimen, Cerebral Hemorrhage, presented March 18, was discussed by Drs. T. C. Smith and J. Ford Thompson.

Dr. T. C. Smith believed that cerebral hemorrhage would soon be considered a surgical disease. He inquired as to the propriety of surgical intervention in certain cases.

Dr. J. Ford Thompson said that surgeons did not hesitate to operate when the lesion was definitely located. He did not agree with Dr. Smith that apoplexy would be considered a purely surgical disease.

Dr. D. S. Lamb said that his post mortem examinations showed that in most cases the clot could easily have been reached by trephining.

Dr. Lamb reported that microscopical examination of the specimens presented by him on March 11 showed that the growths of the liver and stomach were adeno-carcinomata; the retro-peritoneal tumors were sarcomata.

Dr. S. S. Adams' case of Appendicitis was discussed by Drs. G. B. Miller, Borden, Balloch. See page 138.

Dr. Bovée read a paper on "Complete Nephro-ureterectomy." Discussed by Drs. Vaughan, F. R. Hagner, J. Ford Thompson, Abbe and G. B. Miller. See page 126.

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## Medical Miscellany.

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**Eye, Ear and Throat Society of Washington.**—At its last regular meeting for the year, held Friday evening, May 22, the Ophthalmological and Otological Society elected its officers for the ensuing year as follows: for president, Dr. Walter A. Wells; vice-president, Dr. W. N. Suter; secretary and treasurer, Dr. H. O. Polkinhorn.—W. A. WELLS.

**Eastern Dispensary and Casualty Hospital.**—Quarterly report ending March 31, 1903—Casualty Department: Casualty cases, 317; operations, 110; deaths, 2; number admitted to the

wards, 101; meals furnished to patients, 218; non-residents admitted, 22.

Dispensary services: Number receiving first treatment, 547; number receiving further treatment, 374; NUMBER FOUND UNWORTHY BY THE ASSOCIATED CHARITIES, 173; number of new patients, 429; number of prescriptions compounded, 2,572; number of redressings, 910; number of operations, 55; number of revisits, 1,955. No person is treated unless certified to by the Associated Charities or a reputable physician.—C. R. DUFOUR.

**The Woman's Clinic.**—During the months of March and April the Woman's Clinic saw 634 patients, of whom 151 were new. It gave 75 treatments and over 800 prescriptions. Owing to the absence of an operating room and hospital facilities, the clinicians are unable to perform operations on many of the cases that come under their observation, consequently these cases have to be sent to the different hospitals in the city. Funds are greatly needed for the establishment of a small hospital and its necessary equipment in connection with the Clinic, and it is hoped that some philanthropic person interested in woman's work for women and children may donate the necessary funds. The Board of Directors feel that the time has come for the Clinic to possess its own home instead of depending on rented property, and after the most careful expenditure of its limited means, and saving, little by little, toward a building fund, it feels secure enough to lay out its savings in a piece of property in such a way that monthly rent may go towards future payments. The Finance Committee has taken the matter in hand and is looking for a desirable piece to purchase.

ELIZABETH CLARK.

**A Gas Disease in Fishes.—U. S. Fish Commission.**—A mortality among fishes in both fresh and salt water at fish-cultural stations of the Fish Commission has recently been ascribed to a supersaturation of the water with air, and attention is called to the analogy between this affection and the caisson or compressed air disease in man. The excess of dissolved air was produced in one case by artificial, in the other by natural, conditions. At the Woods Hole station the sea water is pumped into high tanks to furnish a gravity flow for the aquaria and hatching boxes. A leak in the suction pipe furnished the air, and the height of the water in the tanks the pressure, these two factors forcing more air into the water than it could hold at atmospheric pressure, in other words, supersaturating it, in which condition it was delivered into the aquaria. The gills of any fishes in these aquaria are immersed in water the osmotic pressure of whose dissolved gases—mainly air—is extraordinarily high. The blood therefore takes up an unusual quantity of air—not oxygen alone, but nitrogen as well—and the slightly higher temperature of the systemic circulation

forces a part of this out of solution to appear as free bubbles in the blood vessels. This is a continuous process, ending in the plugging of the circulation, and accordingly at autopsy the larger vessels are found to contain considerable quantities of gas. The heart is often distended with it and the gill filaments occupied by gas emboli. An infection by gas-producing organisms is at once suggested, but culture media planted with the blood and other tissues remain sterile, while the fatal termination is often so rapid that an infection is improbable. Fish may die within ten hours or may survive several days, species varying in susceptibility.

On standing in an open vessel the water corrects itself in a shorter or longer time according to the amount of water and the shape of the vessel. An apparatus for dividing the water into fine streams—as a vessel with a perforated bottom—and so placed as to allow a considerable fall, effects an immediate deaeration so that it is no longer fatal to fishes.

A similar case occurred at the Erwin fish-cultural station in Tennessee, and here a natural evolution of air from the depths of the bed of a limestone spring dissolved the air in an excess much slighter than the instance above cited, causing a lesser mortality with less conspicuous gaseous lesions among most of the dead fish. Adult fish are more susceptible than the young.

The relation to the caisson disease is seen in the high osmotic pressure which prevails, in the one case of air as gas at the lungs and in the other of air in solution in the water at the gills, and in the release of gas within the vascular system as occurs in those rarer cases of high and prolonged air pressure. The decompression after these pressures has no counterpart among the fishes which remain in and die under constant conditions of supersaturated water.—M. C. MARSH.

**Episcopal Eye, Ear and Throat Hospital.**—Excavation for the new hospital was begun May 19 and the corner-stone will be laid with appropriate ceremonies by the Bishop and clergy of the Episcopal Church June 6. The entire cost of the new building, not including the furniture, will be about \$75,000. The hospital will be located on Fifteenth Street near M, on the corner of an alley. It will have a frontage of 57 feet and will be 112 feet deep. It is to be thoroughly fireproof and will consist of three stories and basement. It will accommodate about 60 inmates, including rooms for 16 private patients, about 35 free patients, and rooms for the resident physician, superintendent, nurses, &c. There will be separate rooms for white and colored patients.

The basement will contain the dining rooms, kitchen, laundry, store room, servants' rooms, and fuel and boiler rooms. The main floor will be devoted mainly to the dispensary work, reception rooms, parlor, resident physician's room, children's ward and nurses' room. There will also be a small chapel on this floor. On



the second floor will be one ward, ten rooms for private patients, operating room, and rooms for the superintendent and nurses. The third floor will contain three wards of seven beds each, the main operating room, isolation room, assistant superintendent's room and a diet kitchen. There will also be a diet kitchen on the second floor for private patients, where china and tableware for their exclusive use may be kept. Several of the private rooms will also have individual baths. There will also be a roof garden.

As the building is to be thoroughly fireproof, the stairways will be constructed of iron and stone, the corridors and dispensary will have floors of terrazzo and marble, and the floors in the operating rooms will be of tile. Adjoining the main operating room there will be etherizing and sterilizing rooms and a wash room for the surgeons. The building will be completed by February next. The building committee consists of Messrs. H. P. Blair, F. B. Austin and W. H. Singleton and Drs. H. D. Fry and E. Oliver Belt. The builders are Richardson & Burgess and the architect is Mr. Wm. M. Poindexter.—E. OLIVER BELT.

**Central Dispensary and Emergency Hospital.**—At the last annual meeting of the Board of Directors, in April, Mr. W. J. Boardman was elected President of the Board; Commander F. A. Miller, Vice-President; Dr. W. P. Carr, Secretary, and Mr. A. T. Brice, Treasurer. Changes were made in the attending staff, whereby Dr. H. L. E. Johnson retired to the consulting staff and Dr. G. Brown Miller was elected to the attending staff, and appointed Director of the Clinic for Diseases of Women. At the competitive examination for Junior Assistant Resident, held in May, Dr. J. B. Hussey was chosen. The Board has also authorized the attending staff to employ a permanent resident physician.—S. M. BURNETT.

**Sibley Hospital** has recently been enlarged by the addition of an adjoining building, containing twelve private rooms and one ward. The hospital building and annex have undergone considerable improvement. A covered passageway connects the two. The wall paper and carpets in the annex were removed, and the walls and ceiling of the rooms and hallways coated with alabastine. The ceilings and walls of the operating room and of the main hallway are painted. Tessera floors were put down in the bath rooms, water closets and lower hallway. The hospital and annex are lighted by electricity and heated by hot water. A laboratory for testing blood, sputa, urine, etc., is one of the new features. The hospital now contains twenty-eight private rooms and six wards, two for white women, one for colored; a ward for men, one for children, and one maternity ward. The nurses eat and sleep in Rust Hall. The popularity of the hospital is increasing. Over 700 patients were admitted last year, one-third of whom were free.—D. B. STREET.

**Phenacetin.—Health Department, District of Columbia.—**

The Health Department recently purchased and analyzed 113 samples of phenacetin from as many drug stores, located in various parts of the District of Columbia. In 21 instances the samples were found to have been adulterated; flour, soda bicarbonate and acetanilid had been substituted in whole or in part for phenacetin. A second lot of 25 samples was subsequently purchased. Of these 17 were spurious. All the adulterated samples found in the second lot came from stores which had sold the adulterated material in the first instance. Prosecutions have been duly instituted.—W. C. WOODWARD.

**The Washington Asylum Hospital.**—Since the last article from this hospital Dr. E. L. Keyes, Jr., of New York, visited it and in the presence of a number of students from Georgetown Medical School and several physicians who had had the pleasure of hearing his special lectures, performed an operation for impassable stricture of the urethra. In order to complete the operation it was necessary to do a suprapubic cystotomy and a retrograde catheterization. It had been the Doctor's experience that the operation for impassable stricture had but rarely required the opening of the bladder, although the last three operations performed at this institution by the Visiting Physician required the bladder to be opened before completing the operation. The patient made an ideal recovery.

During the month of April there were admitted into the Hospital department 91 patients.

The Training School for Nurses held its Annual Commencement in The Columbian University Hall, Tuesday evening, May 26, at 8 P. M. Dr. I. S. Stone delivered the address to the graduating class and the music was furnished by the Marine Band. The graduates were Misses Elizabeth Hay, Annie Frisby, Jannette Jefferson, Elizabeth Milton, Grace Knettle, L. B. Anderson, I. M. Burling and E. M. E. Smith.—D. P. HICKLING.





# Medical Society of the District of Columbia.

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*Antisell, Thomas.....	Washington, D. C.
1894—Ashby, Thomas A.....	1125 Madison avenue, Baltimore, Md.
*1866—Barnes, Joseph K.....	Surgeon-General, U. S. A.
*1819—Beans, William.....	Maryland.
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*1894—Brown, Bedford.....	Alexandria, Va.
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*1821—Hewson, Thomas T.....	Philadelphia, Pa.
*1821—Jackson, James.....	Boston, Mass.
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1894—Osler, William.....	1 West Franklin street, Baltimore, Md.
*1875—Otis, George A.....	Surgeon, U. S. A.
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*1894—Russel, M. W.....	Concord, N. H.
1894—Shattuck, Frederick C.....	135 Marlboro street, Boston, Mass.
*1819—Spence, John T.....	Virginia.
1894—Sternberg, George M.....	2144 Cal. ave., Surgeon-General, U. S. A.

\* Deceased.

*1839—Taylor, William.....	New York.
*1894—Tryon, J. R.....	Surgeon-General, U. S. N.
*1821—Warren, John C.....	Boston, Mass.
*1821—Waterhouse, Benjamin.....	Boston, Mass.
*1874—Wood, William Maxwell.....	Surgeon-General, U. S. N.
*1874—Woodward, Joseph J.....	Surgeon, U. S. A.
1894—Wyman, Walter.....	Supervising Surgeon-General, U. S. M. H. S.

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“ J. F. Urie.....	Navy Department.
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“ J. C. Wise.....	Warrenton, Va.

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“ Dr. George Purviance.....	The Gloucester.
“ M. J. Rosenau.....	3211 13th street, n. w.
“ G. T. Vaughan.....	1718 I street, n. w.

\* Deceased.

*Miscellaneous.*

Dr. Frank Baker.....	1728 Columbia Road.
" I. W. Blackburn.....	St. Elizabeth Asylum.
Dr. W. M. Gray.....	Army Medical Museum.
Prof. W. J. McGee.....	1901 Baltimore street, n. w.
Dr. E. A. Penny.....	Venezuelan Legation.
" W. F. R. Philips.....	Weather Bureau.
" A. B. Richardson.....	St. Elizabeth Asylum.
" D. V. Salmon.....	Bureau Animal Industry.
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" C. W. Stiles.....	U. S. Marine Hospital Service.

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Adams, Samuel Shugert.....	I Dupont Circle.
Anderson, C. G.....	21st street and Hillyer Place, n. w.
Armstrong, Wm. J.....	1629 Connecticut avenue, n. w.
Atkinson, Wade H.....	1402 M street, n. w.
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Baker, Robert W.....	1816 I street, n. w.
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Barker, Howard W.....	2108 O street, n. w.
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Bovée, John Wesley.....	1404 H street, n. w.
Bowen, William Sinclair.....	1228 16th street, n. w.
Brackett, John E.....	1310 Rhode Island avenue, n. w.
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Bromwell, Josiah Robson.....	1147 Connecticut avenue, n. w.
Brooks, Floyd V.....	Bond Building.
Brown, Charles W.....	1411 K street, n. w.
Bruckheimer, M.....	467 I street, n. w.
Brumbaugh, Gaius M.....	905 Massachusetts avenue, n. w.
Bryan, Joseph Hammond.....	818 17th street, n. w.
Bulkley, John Wells.....	1612 I street, n. w.
Burnett, Swan Moses.....	916 17th street, n. w.

\*Members are requested to report errors in name or address to the Editorial Committee.



Burton, G. C.....	924 New York avenue, n. w.
Butler, William Kennedy.....	1207 M street, n. w.
Byrns, William Francis.....	1509 U street, n. w.
Caldwell, Charles Tufts.....	927 New York avenue, n. w.
Callan, Cornelius Van Ness.....	1422 F street, n. w.
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Carmichael, Randolph Bryan.....	1134 Connecticut avenue, n. w.
Carr, William Phillips.....	1418 L street, n. w.
Carrico, Albert J.....	3218 14th street, n. w.
Castelli, Enrico.....	1518 K street, n. w.
Chadwick, De Witt C.....	61 I street, n. w.
Chamberlain, Frank Tenney.....	226 New Jersey avenue, s. e.
Chappell, J. W.....	Grant Road, Tenleytown, D. C.
Chew, Thomas J.....	226 East Capitol street.
Clark, Charles H.....	St. Elizabeth Hospital.
Claytor, Thomas A.....	1323 New Hampshire avenue.
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Cole, John T.....	820 H street, n. e.
Collins, Charles Reed.....	1125 14th street, n. w.
Compton, William Penn.....	1701 H street, n. w.
Cook, George Wythe.....	3 Thomas Circle.
Copeland, Edgar P.....	1335 N street, n. w.
Corey, George B.....	1803 9th street, n. w.
Coumbe, O. H.....	248 Delaware avenue, n. e.
Cox, S. Clifford.....	2018 I street, n. w.
Crook, Harrison.....	The Sherman.
Crosson, H. J.....	806 19th street, n. w.
Cuthbert, Middleton F.....	1462 Rhode Island avenue, n. w.
Deale, Henry Buckmaster.....	1207 Connecticut avenue, n. w.
De Vries, J. Carlisle.....	62 M street, n. w.
Dillenback, William J.....	1344 R street, n. w.
Donohue, Florence.....	1134 8th street, n. w.
Dorsey, John S.....	Langdon, D. C.
Dowling, Thomas.....	614 E street, n. w.
Duffey, H. C.....	1308 9th street, n. w.
Dufour, Clarence Ruter.....	1343 L street, n. w.
Dulaney, Joshua Lambert.....	926 I street, n. w.
Durfee, Raphael B.....	1814 K street, n. w.
Dye, Hobart S.....	1406 L street, n. w.
Eliot, Johnson.....	718 H street, n. e.
Eliot, Llewellyn.....	1106 P street, n. w.
Emmons, Charles M.....	1019 G street, s. e.
Erbach, Amelia.....	709 East Capitol street.
Evans, Warwick.....	1105 9th street, n. w.
Farquhar, R. R.....	1918 N street, n. w.
Fenwick, George Philip.....	504 6th street, s. w.
Ferguson, Charles E.....	1648 North Capitol street.
Fisher, Howard.....	The Mendota.
Forsythe, A. D.....	1449 Rhode Island avenue, n. w.
Fowler, Ernest W.....	Kendall Green.
Fowler, William C.....	1141 5th street, n. w.
Fox, William Henry.....	1138 Connecticut avenue, n. w.
Foye, A. Frances.....	1342 Q street, n. w.
Franzoni, Charles William.....	605 I street, n. w.
French, William B.....	506 East Capitol street.
Friedrich, Leon L.....	329 East Capitol street.
Fry, Henry D.....	1601 Connecticut avenue, n. w.
Gallagher, Michael F.....	802 Mount Vernon Place.
Gibson, Frank E.....	927 I street, n. w.
Gill, William T.....	442 M street, n. w.

Glazebrook, L. W.....	2022 P street, n. w.
Gleeson, James K. P.....	1316 R street, n. w.
Graham, Neil Duncan.....	1009 O street, n. w.
Graham, Neil F.....	909 New York avenue, n. w.
Graham, Robert H.....	303 H street, n. w.
Grasty, Thomas S. D.....	1231 New Hampshire avenue, n. w.
Greene, Samuel H., Jr.....	1320 Q street, n. w.
Griffith, M.....	1013 14th street, n. w.
Groover, Thomas A.....	919 15th street, n. w.
Gunion, John Paul.....	927 O street, n. w.
Gwynn, William C.....	3336 O street, n. w.
Hagner, Francis R.....	1717 N street, n. w.
Hall, Arthur Joseph.....	928 I street, n. w.
Hammett, C. M., Jr.....	1328 New York avenue, n. w.
Hammond, Thomas V.....	1713 H street, n. w.
Hardin, B. L.....	1132 Connecticut avenue, n. w.
Harding, Harry T.....	2650 14th street, n. w.
Hasbrouck, Edwin M.....	2422 14th street, n. w.
Hawkes, William H.....	1317 Columbia road, n. w.
Hazen, D. H.....	407 6th street, s. w.
Heger, Anthony.....	2026 Hillyer Place, n. w.
Heiberger, Ida J.....	722 18th street, n. w.
Heinecke, George B.....	804 11th street, n. w.
Henderson, George.....	817 T street, n. w.
Herbert, Joseph Wells.....	205 H street, n. w.
Hickling, Daniel P.....	1304 Rhode Island avenue, n. w.
Holden, Raymond T.....	802 6th street, s. w.
Hooe, A. Barnes.....	1110 New York avenue, n. w.
Howard, Joseph T.....	1126 9th street, n. w.
Hughes, William D.....	651 H street, n. e.
Hull, Theodore Y.....	Brookland, D. C.
Hunt, Presley J.....	1815 M street, n. w.
Hunter, Montgomery.....	2808 N street, n. w.
Hurt, Harry.....	1510 H street, n. w.
Hyatt, Franck.....	1022 14th street, n. w.
Jack, William A., Jr.....	501 New Jersey avenue, n. w.
Jackson, V. B.....	1305 H street, n. w.
James, Charles H., Jr.....	The Farragut.
Jenner, Norman R.....	1731 12th street, n. w.
Jewett, Henry M.....	
Johnson, Albert E.....	117 B street, s. e.
Johnson, Henry L. E.....	1821 Jefferson Place, n. w.
Johnson, Joseph Taber.....	1728 K street, n. w.
Johnson, Loren B. T.....	924 Farragut Square.
Johnson, Louis A.....	709 C street, s. w.
Johnson, Wallace.....	1414 U street, n. w.
Jung, Franz A. R.....	825 Vermont avenue, n. w.
Jung, Sofie A. Nordhoff.....	825 Vermont avenue, n. w.
Junghans, John H.....	417 D street, n. e.
Keech, Thomas A. R.....	424 East Capitol street.
Keene, Walter P.....	1208 31st street, n. w.
Kelley, John Thomas, Jr.....	1312 15th street, n. w.
Kelly, Daniel J.....	1635 19th street, n. w.
Kerr, James.....	1711 H street, n. w.
Keyes, Charles W.....	1022 9th street, n. w.
Keyser, C. S.....	2019 Massachusetts avenue, n. w.
King, Albert F. A.....	1315 Massachusetts avenue, n. w.
King, Ernest F.....	Bond Building.
Kleinschmidt, Carl H. A.....	3048 N street, n. w.
Kober, George M.....	1600 T street, n. w.

Kolipinski, Louis .....	631 I street, n. w.
Kramer, Thomas Best .....	634 A street, s. e.
Koones, Charles K. ....	600 M street, n. w.
Kurtz, John .....	3142 P street, n. w.
Lamb, Daniel Smith .....	800 10th street, n. w.
Lamb, Isabel Haslup .....	800 10th street, n. w.
Lamb, Robert Scott .....	1017 14th street, n. w.
Lee, Thomas S. ....	1315 Connecticut avenue, n. w.
Leech, Daniel Olin .....	631 Maryland avenue, n. e.
Leech, Frank .....	1715 14th street, n. w.
LeMerle, Eugene L. ....	2011 Q street, n. w.
Lemon, H. T. A. ....	629 G street, s. w.
Lewis, Duff G. ....	1311 14th street, n. w.
Lewis, Samuel E. ....	1418 14th street, n. w.
Lochboehler, George J. ....	55 K street, n. w.
Loring, Frank B. ....	1420 K street, n. w.
Luce, Charles R. ....	215 2d street, s. e.
Luckett, L. Fleet. ....	1419 Rhode Island avenue, n. w.
McArdle, Thomas E. ....	1120 16th street, n. w.
McCormick, John H. ....	128 C street, n. e.
McGee, Anita N. ....	1901 Baltimore street, n. w.
McGuire, James C. ....	818 17th street, n. w.
Machen, Francis S. ....	3018 13th street, n. w.
Machinek, Camillo H. ....	1322 Rhode Island avenue, n. w.
McKaig, J. P. ....	2406 Pennsylvania avenue, n. w.
McKimmie, Oscar A. M. ....	1333 N street, n. w.
McLain, John S. ....	1320 19th street, n. w.
McLaughlin, Thomas N. ....	1226 N street, n. w.
McNally, Valentine .....	Hamilton House.
Macatee, Henry C. ....	3 Thomas Circle.
Mackall, Louis .....	3040 Dumbarton avenue, n. w.
Mackall, Louis, Jr. ....	1409 30th street, n. w.
Maddren, Edith L. ....	142 A street, n. e.
Magee, M. D'Arcy .....	1355 Corcoran street, n. w.
Magruder, George L. ....	The Farragut.
Mallan, Thomas F. ....	27 B street, s. e.
Malone, W. P. ....	1510 H street, n. w.
Marbury, Charles C. ....	1121 14th street, n. w.
Marshall, Collins. ....	2507 Pennsylvania avenue, n. w.
Mason, Elijah L. ....	Children's Hospital.
Mason, Robert F. ....	1706 Connecticut avenue, n. w.
Masterson, William L. ....	2 I street, n. e.
Maxcy, Frederick E. ....	1118 Rhode Island avenue, n. w.
Mayfield, Clifton .....	1335 30th street, n. w.
Mazzei, F. A. ....	301 2d street, n. w.
Medford, H. S. ....	138 C street, n. e.
Mellott, Samuel W. ....	8 Seaton street, n. w.
Merriam, Arthur C. ....	1201 New Jersey avenue, n. w.
Metzerott, John H. ....	1110 F street, n. w.
Miller, G. Brown .....	1733 H street, n. w.
Miller, J. Preston .....	2621 14th street, n. w.
Miller, Maurice E. ....	1618 H street, n. w.
Miller, Thomas .....	1616 7th street, n. w.
Miller, William L. ....	410 K street, n. w.
Miner, Francis H. ....	119 2d street, n. e.
Moran, John F. ....	2426 Pennsylvania avenue, n. w.
Morgan, Edwin L. ....	2315 Pennsylvania avenue, n. w.
Morgan, Francis P. ....	1739 P street, n. w.
Morgan, James D. ....	919 15th street, n. w.
Morgan, W. Gerry .....	1417 Rhode Island avenue, n. w.



Morris, George G.....	815 14th street, n. w.
Morse, Edward E.....	1525 I street, n. w.
Motter, Murray Galt.....	1815 Belmont avenue.
Moulden, Wm. R.....	1305 Rhode Island avenue, n. w.
Mullins, J. B.....	1431 Rhode Island avenue, n. w.
Muncaster, Otho M.....	802 19th street, n. w.
Muncaster, Stewart B.....	907 16th street, n. w.
Muncey, Elizabeth B.....	2825 14th street, n. w.
Murray, Thomas Morris.....	730 17th street, n. w.
Nash, Francis S.....	1723 Q Street, n. w.
Neff, Wallace.....	1337 K street, n. w.
Nevitt, James R.....	618 3d street, n. w.
Newell, William S.....	1510 H street, n. w.
Newman, Henry M.....	2403 Pennsylvania avenue, n. w.
Nichols, J. B.....	1331 N street, n. w.
Norris, Phebe R.....	1109 14th street, n. w.
Ober, George Clark.....	210 B street, s. e.
O'Donohue, John Alphonso.....	3311 N street, n. w.
Parsons, Alfred V.....	Takoma Park, D. C.
Parsons, Mary A.....	1216 H street, n. w.
Perry, George N.....	1316 Q street, n. w.
Petteys, Charles Volney.....	1822 12th street, n. w.
Pickford, Edward F.....	422 8th street, s. e.
Pile, Mayne M.....	1332 R street, n. w.
Polkinhorn, Henry A.....	900 14th street, n. w.
Pool, Benjamin G.....	945 Rhode Island avenue, n. w.
Portman, Adeline E.....	Chevy Chase, Md.
Prentiss, Daniel Webster.....	1101 14th street, n. w.
Prentiss, Elliott C.....	1409 Rhode Island avenue, n. w.
Price, John F.....	607 6th street, s. w.
Radcliffe, Samuel J.....	2733 P street, n. w.
Ramsburgh, Jesse.....	The Portner.
Rand, Charles F.....	1228 15th street, n. w.
Reeve, Jesse N.....	1606 19th street, n. w.
Reeves, William P.....	210 Delaware avenue, n. e.
Reichelderfer, L. H.....	Garfield Hospital.
Reisinger, Emory W.....	1209 13th street, n. w.
Repetti, F. F.....	149 B street, s. e.
Reyburn, Robert.....	2129 F Street, n. w.
Rhett, Henry J.....	1309 Connecticut avenue, n. w.
Richardson, Charles W.....	1317 Connecticut avenue, n. w.
Richardson, J. J.....	1016 14th street, n. w.
Richey, Stephen Olin.....	732 17th street, n. w.
Riggles, J. Lewis.....	811 O street, n. w.
Robbins, Henry A.....	1750 M street, n. w.
Robins, William L.....	1700 13th street, n. w.
Roman, Frederick O.....	1501 8th street, n. w.
Roy, Philip S.....	I L street, n. w.
Ruffin, Sterling.....	1023 Vermont avenue, n. w.
Savage, L. S.....	Bennings, D. C.
Scott, James Foster.....	The Albany.
Seibert, E. G.....	916 14th street, n. w.
Sellhausen, E. A.....	640 G street, n. w.
Shands, A. R.....	1319 New York avenue, n. w.
Shoup, Jesse.....	117 Maryland avenue, n. e.
Shute, Daniel K.....	1101 13th street, n. w.
Simpson, John C.....	St. Elizabeth Hospital.
Smith, Thomas C.....	1133 12th street, n. w.
Snyder, Arthur A.....	3051 N street, n. w.
Sohon Frederick.....	512 I street, n. w.

Sothoron, Elmer H.....	1921 I street, n. w.
Sowers, Zachariah T.....	1707 Massachusetts avenue, n. w.
Sprigg, William M.....	1015 16th street, n. w.
Squire, Susanna J.....	1736 North Capitol street.
St. Clair, Francis A.....	1319 T street, n. w.
Staples, Aubrey H.....	1424 New York avenue, n. w.
Staveley, Albert L.....	1207 Connecticut avenue, n. w.
Stone, Charles G.....	Brightwood, D. C.
Stone, Isaac S.....	1439 Rhode Island avenue, n. w.
Storch, A. B.....	142 E street, n. e.
Stoutenburg, John A.....	116 2d street, s. e.
Street, Daniel B.....	1102 9th street, n. w.
Strobel, M. Louise.....	16 R street, n. w.
Stuart, A. Rhett.....	7 Dupont Circle.
Stuart, James.....	937 R street, n. w.
Suddarth, James L.....	817 North Capitol street.
Suter, Henderson, Jr.....	3050 N street, n. w.
Suter, Norwood.....	911 16th street, n. w.
Taylor, Thomas.....	238 Massachusetts avenue, n. e.
Thomas, Ada R.....	The Thomas.
Thomas, John D.....	1603 19th street, n. w.
Thompson, Joseph Ford.....	804 17th street, n. w.
Thompson, Millard F.....	484 Maryland avenue, s. w.
Thönssen, Wm. J. R.....	315 C street, s. e.
Tiefenthaler, B. F.....	516 10th street, n. w.
Tompkins, Edmund L.....	1512 Q street, n. w.
Toner, John E.....	Government Hospital for the Insane.
Tubman, James R.....	1222 11th street, n. w.
Tucker, Wm. Peyton.....	2901 14th street, n. w.
Tyler, Abbie C.....	1126 12th street, n. w.
Vale, Frank P.....	1616 I street, n. w.
Van Rensselaer, John.....	2 Thomas Circle.
Vincent, Thomas N.....	1221 N street, n. w.
Walker, Louis A.....	223 E street, n. w.
Wall, Joseph S.....	1228 14th street, n. w.
Walsh, F. C.....	1504 H street, n. w.
Walsh, John Edgar.....	200 East Capitol street.
Walsh, Ralph.....	1504 H street, n. w.
Walter, John.....	1010 F street, n. w.
Walter, William F.....	713 4½ street, s. w.
Ward, William.....	1920 H street, n. w.
Ward, William H.....	1756 Pennsylvania avenue, n. w.
Warren, G. W.....	1212 H street, n. e.
Watkins, Samuel E.....	1246 10th street, n. w.
Weaver, Clarence A.....	1614 Q street, n. w.
Wellington, John R.....	1706 Rhode Island avenue, n. w.
Wells, Walter A.....	1133 14th street, n. w.
White, Charles S.....	1400 K street, n. w.
Whitson, W. E.....	418 6th street, n. w.
Wilmer, William H.....	1610 I street, n. w.
Wilson, Anne A.....	The Farragut.
Winter, Eugene C. C.....	815 4½ street, s. w.
Wood, George W.....	2904 P street, n. w.
Woodward, Wm. C.....	508 I street, n. w.
Yarnall, J. H.....	3120 N street, n. w.
Yarrow, Henry C.....	814 17th street, n. w.
Young, Parke G.....	1103 O street, n. w.

# WASHINGTON MEDICAL ANNALS

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## THREE CASES OF TETANUS SUCCESSFULLY TREATED.\*

By J. FORD THOMPSON, M. D.,

Washington, D. C.

The following is a synopsis of Dr. Thompson's paper: The disease is peculiarly fatal in children under 10 years old. There are two forms, acute and chronic; the acute is almost invariably fatal; many chronic cases recover. The incubation period in acute cases is about one week; in chronic cases the first symptoms appear about the third week. Cases of six weeks or two months' duration are occasionally seen. Yandell reports a case lasting 240 days. Rose states that the mortality of early cases is 91 per cent.; of late cases, 48 per cent.

Many different medicines have been used in the treatment: Calabar bean, chloral, cannabis indica, curare, amyl nitrite, quinine and opium, chloroform and serum therapy. Moschowitz has collected 338 cases treated with serum with a mortality of 42 per cent., and concludes that the serum treatment is beneficial. The dose of Behring's serum hypodermically is 500 units; prophylactic dose, 200 units. It could also be introduced directly into a vein, intracranially or by lumbar puncture. Baccelli used carbolic acid injections, 10 to 30 drops of a 1 per cent. solution, every three or four hours.

Case 1. Frances Fenton, white, age 4½ years. Family and previous history negative. July 10, 1902, she stuck a thorn in the sole of her left foot. The wound healed in a day or two, leaving a small scar. 19th. She had stiffness and pain in back of neck and her face was livid. 22d. A violent spasm, jaw somewhat fixed and muscles of back and abdomen rigid.

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\* Reported to the Medical Society of the District of Columbia, April 1, 1903.



July 25. Admitted to Children's Hospital, Washington, semi-conscious, perspiring very freely; urinated involuntarily and expectorated a little blood. Rested fairly well during the night. 26th. Marked rigidity of limbs; large brown stool. Gave chloral five grains every four hours. Slept well at night, except that when disturbed her limbs became rigid. 27th. Brighter and talked a little; restless in the evening. Gave the chloral every three hours; restless during early part of night. 28th. Very fretful; profuse sweating; stools normal. Continued the chloral; slept all night. 29th. Complained of sore throat; slight twitching of limbs; refused food; very restless and nervous; stools normal. Chloral continued; restless at night. 30th. Fairly comfortable; still complained of sore throat; food retained; stools normal. Gave five grains of sodium bromide with each dose of chloral; slept all night. 31st. Very comfortable; appetite good; stools normal. Same treatment continued.

During the next week she slept well; at first there was occasional rigidity when she was disturbed; afterwards the muscles were relaxed; appetite good; stools normal; played and talked a little; involuntary urination Aug. 7. The improvement continued; still some rigidity when disturbed; had a slight eruption on neck and chest for two days; talked at times; tongue dry and furred, on the 11th, and constipation. 14th. Could move her limbs a little. Continued the bromide and chloral. During the next week she improved still more; some involuntary micturition and constipation. On the 17th could open her mouth wider. 21st. Moved her arms freely. The treatment continued till the 25th, when the chloral was stopped. 27th. Moved arms and legs. 31st. Frequently laughed and talked. Sep. 4. Discharged from hospital cured.

Case 2. Frank Hagan, white, age 11 years. Family and previous history negative. About July 28, 1902, cut his left foot over external malleolus while playing on a pile of garbage. Wound rapidly healed and he remained well until August 25, when he had pain in the neck and jaw and was unable to open his mouth. 26th. All the muscles of the body rigid. 27th. Severe spasms causing him to shriek with pain; slept poorly. 28th. Rigidity so great he could be lifted by his head and heels without bending his body. Admitted to Children's Hospital, Washington. Gave chloral and sodium bromide, each five grains, every three hours. Muscles

afterward became relaxed. Slept some at night. 29th. Mind better and he could move his limbs freely; slept some at night; seemed to have much pain. 30th. Very rigid; gave chloral, 20 grains, and applied sandbag to feet and cold stupes to abdomen. Afterward gave chloral and the bromide, and he could move his arms and legs more easily. Slept some; cried and screamed as if in much pain; jaws rigid and he bit his tongue. Morphia sulphate one-eighth grain was given and muscles became relaxed. Alternated morphia with chloral 20 grains, and the bromide 15 grains. 31st. He seemed much better; muscles more relaxed; pulse weak and irregular.

Sept. 1, he was fairly quiet; later became very rigid at intervals. Stopped chloral and gave morphia one-eighth grain with the bromide 15 grains every three hours. 2d. Very rigid at intervals; pulse weak and irregular; delirious at times and very noisy. Gave 50 minims of 1 to 40 solution of carbolic acid hypodermically. 3d. He had choking sensations and screamed with pain. Repeated the carbolic acid. He became very nervous, excited and delirious; screamed at intervals. Gave morphia sulphate one-eighth grain every two hours and chloral 10 grains every three hours, and repeated the carbolic acid. Stopped the morphia and chloral at 6 p. m. He became quiet toward morning, but respiration was bad and pulse irregular. Gave atropia sulphate one one-fiftieth grain. 4th. Gave morphia one-eighth grain and the bromide 15 grains every three hours. Repeated the carbolic acid. He became more quiet; pulse frequent but regular. Gave morphia one-eighth grain every two hours during the night; delirious and very noisy until toward morning. 5th. Pulse irregular. Repeated carbolic acid three times. Pulse became regular and fairly strong; delirious at intervals; morphia one-eighth grain every two hours during the night and the bromide 15 grains every three hours. 6th. Pulse fairly good, respiration bad. Applied cold stupes to hypogastrium; gave the carbolic acid twice. His eyelids were swollen and there was a slight discharge from the eyes. He slept well at times but screamed at intervals. 7th. Very rigid; pulse weak; respiration poor. Gave the morphia hypodermically every three hours, the bromide every three hours, and the carbolic acid twice. Slept better.

8th. Pulse good; patient quiet and rational. Gave the carbolic

acid four times; stopped morphia in the evening. Respiration slow at intervals; pulse fairly good. 10th. Patient quiet at intervals. Same treatment. Slept fairly well; cried some. 11th. Same treatment. Pulse good; patient noisy; slept better than usual but cried out at intervals as if in pain. 12th. Stopped morphia and gave the carbolic acid three times. Patient very noisy, restless; screamed at intervals. Gave morphia every two hours till 4 a. m., when he was quiet. 13th. Patient nervous. Gave carbolic acid twice and morphia once. Slept well until 1 a. m.; was then very nervous; later became quiet. 14th. Gave morphia and the carbolic acid several times. Slept till midnight; then restless and noisy. 15th. Stopped the bromide. Pulse weak; respiration poor. Gave nitroglycerine one-hundredth grain hypodermically; also morphia. Pulse and respiration improved. Gave the carbolic acid and morphia. 16th. Pulse and respiration better; patient quiet; talked some; muscles slightly relaxed. Gave morphia four times. Somewhat restless at night. 17th. Stopped the carbolic acid and gave morphia once. 18th. Restless and noisy at intervals. Morphia three times. 20th. Brighter, more rational, but more restless and nervous. Morphia every three hours. Very noisy most of the night. 22d. Pulse frequent but good; pain in neck; muscles rigid almost all day. Morphia and the bromide every three hours. 23d. Very noisy and restless at times, screaming; pulse frequent; respiration poor. Morphia and the bromide every three hours; also fluid extract cannabis indica one to two drops, twice. 24th. Screamed and was very noisy at intervals; muscles rigid; later was more rational. Same treatment. 25th. Noisy at intervals. Stopped the bromide; gave morphia and cannabis indica. 26th. Noisy and restless at times. Same treatment. 27th. Screamed much of the night and persistently tried to get up. Gave cannabis indica extract six drops and morphia one-eighth grain every three hours, and chloroform inhalation. 29th. Morphia and cannabis indica as required. His nights and days were now quieter. Same treatment. October 5, he was brighter and fairly comfortable. Gave the bromide five grains every three hours. He continued to improve and was discharged November 5, cured.

Case 3. William Gibson, colored, age 11 years. Family and previous history negative. About November 5, 1902, while sliding down a plank, lacerated outer surface left arm. Wound did not



heal. 16th. Muscles of jaw and neck became rigid, and the rigidity extended to muscles of back and abdomen. No violent spasms; but little pain; some pain in stomach (?). 19th. Admitted to Children's Hospital, Washington. Rigidity general; could open mouth about one inch; no pain. No treatment. 22d. Rigidity more marked; pain in neck and abdomen; refused food. Gave carbolic acid hypodermically, 50 minims of a 1 to 40 solution, along the spine, four times during the day. Slept well. 23d. Less rigidity; seemed comfortable; urinated. Gave sodium bromide 10 grains and chloral 5 grains every three hours; carbolic acid solution four times. Slept well. 24th. Pulse irregular; still less stiffness; appetite good; dysphagia. Gave saturated solution of magnesium sulphate two drachms twice during the day; stopped all other medicines. Slept well. 25th. Rigidity more marked; constipated; slept well. 26th. Still dysphagia, more marked in the morning. Gave carbolic acid four times, and physostigma salicylate one-twentieth grain every three hours. Slept well. 27th. Urinated; no muscular twitching. Slept well. 28th. Rigidity about the same. No medication. Slept well. 29th. Constipated; less rigidity; appetite good; patient very bright. 30th. Condition about the same. Gave carbolic acid four times; physostigma every three hours. He steadily improved, but constipation continued. December 5. Wound healed. Stopped physostigma; continued other treatment. 9th. Renewed physostigma. Rigidity about the same. 14th. Stopped physostigma and carbolic acid. 20th. The rigidity was disappearing. 26th. He was practically well. Discharged February 2, 1903.

**Dr. Borden** said that recovery from acute tetanus was very rare. There was no evidence yet as to the efficacy of any treatment. We knew about tetanus antitoxin and what it should do, but recent observations showed that it had no power to separate the tetanus toxin from the nerve cells with which it had united. It was possible that the toxin was elaborated in the system. Early investigations showed that the bacilli were not carried through the system, but the toxins were, and, reaching the nerve cells, formed a union with them. Recent discoveries showed that the bacilli were also sometimes carried in the circulation. These conclusions gave some indications for treatment: 1, to prevent or break up this union; 2, to stop the migration of the bacilli.

The first was very difficult of accomplishment. Recent experiments seemed only to add to the darkness. The antitoxin treatment did not seem to be as efficacious as was hoped. The

condition was very different from diphtheria ; we were not aware that we had to deal with tetanus until toxæmia had arisen, and the union of the toxin with the motor nerve cells had already occurred ; there was no local lesion like the diphtheritic membrane.

A German physician had reported nine cases of tetanus treated in his clinic ; four by the subdural injection of antitoxin, and all died ; of the remaining five, four died and one recovered with no treatment whatever. There was only one recovery in the nine cases. In judging the value of treatment we must consider the degree of infection, and the intensity and extent of the union between the nerve cells and the toxin of the disease, etc. It should be remembered also that some patients spontaneously recover.

Dr. Thompson's cases were peculiar in one particular. Ordinarily, the shorter the incubation period the severer was the attack ; but his cases did not follow this rule. In his first case the incubation period was only 9 days, but the attack was mild ; in the second the period was 25 days, and the case severe ; in the third the period was 11 days, and yet the symptoms were comparatively mild.

The treatment by carbolic acid was new, and its efficacy had not been proven. Its originator had reported good results, but others had obtained almost uniformly poor results. The antitoxin treatment was the only scientific method we had, and it should be adopted by the profession ; the injection should be made beneath the dura. It should be used just as soon as possible after tetanus was suspected ; the longer we waited the worse for the patient. After referring to the epidemic of tetanus in St. Louis, which followed the injection of antidiphtheritic serum, Dr. Borden added that French had said that all cases injected with the antistreptococcus serum after the symptoms were recognized, died ; those which were injected prophylactically, before the union of the toxin with the protoplasm of the motor cells, did not develop symptoms of tetanus.

**Dr. Vaughan** said that the subject was very interesting, especially the difference between acute and chronic tetanus. *Tetany* was an entirely different disease, but some chronic forms might be confounded with tetanus. There was a great difference between the mortality of acute and chronic tetanus. In 23 years' experience he had seen five cases of the disease, four of which were acute. The chronic case recovered. Antitoxin was used in all. An analysis was as follows : 1. Incubation period, 7 days ; lived 10 days. Tetanus caused by nail in foot. Treatment consisted mainly in the use of chloral and potassium bromide, and subcutaneous injections of antitoxic serum. The convulsions ceased three days before death, which apparently was due to congestion of the lungs. 2. Incubation period 11 days ; caused by compound fracture of leg. Died in 2 days. 3. Incubation period unknown. Due to burn. Death in 4 days. Antitoxin was injected

subcutaneously, intravenously and under the dura. Carbolic acid was also injected beneath the skin. 4. Incubation period 5 days. Nail in foot. Antitoxin and carbolic acid. Death in 48 to 60 hours. In the light of his experience, Dr. Vaughan could not endorse any of these methods of treatment. Possibly the use of antitoxin as a prophylactic might succeed.

**Dr. LaGarde** spoke with reference to the etiological relation between burns and tetanus. He had recently studied the subject to see whether burns predisposed to tetanus. His experiments showed that such was the case. If a spore mass was placed in a clean incised wound, the animal recovered; if it was placed on a burned surface, the animal died of tetanus. The experiment was repeated a number of times and the result was the same in each instance.

Hematomata also predisposed the subject to tetanus. This had also been proved by the experiments of Strick. He demonstrated that hematomata increased the susceptibility to tetanus one thousand times. He determined the lethal dose when the animal was inoculated in a clean incised wound and found that one one-thousandth part of that dose would kill the animal if placed directly into a hematoma.

The length of the incubation period also bore a definite relation to prognosis. In a recent article it was stated that when the period was five to seven days, most subjects lived; if, on the other hand, the symptoms appeared immediately after infection, most patients died. Finally, the rules which applied to all infectious diseases applied also to tetanus; e. g., hematomata, burns and traumatism predisposed the individual to all forms of infection, and the severity of infection depended on the virulence of the infecting organism and the amount of hemorrhage or traumatism.

**Dr. Reyburn** had seen several cases of tetanus; all but one died. The patient who recovered was a boy who took during six weeks six ounces of chloral and potassium bromide in all, in fifteen-grain doses. Much could be done for patients by guarding them from the stimuli which gave rise to the convulsions—noise, drafts of air, touch, etc. He had had little experience with the carbolic acid and serum treatments. They did not appear to be successful. The best thing to do was to keep the patient narcotized, and let the disease wear itself out.

**Dr. D. Olin Leech** said that in September, 1901, he treated a case of acute tetanus. He used the serum treatment, giving in all eight injections of 10 c. c. each, with no beneficial result whatever. Chloral and potassium bromide were given; also cannabis indica and henbane. The incubation period was nine days. The patient died on the third day.

**Dr. Acker** said that he had observed the three cases reported by Dr. Thompson. There was no doubt as to the correctness of the diagnosis. The second case was very severe; it was almost im-



possible even to relieve the symptoms; only morphine could do it. He believed that the chloral and potassium bromide treatment was the most efficient of the methods at our disposal. This view was born out by the cases reported tonight.

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## REPORT OF A CASE OF MALTA FEVER IN WASHINGTON, D. C.\*

By W. B. BANISTER,

Major and Surgeon, U. S. A.

The case that I wish to invite your attention to this evening presents no unusual or peculiar features in itself. Buffalo in the streets of New York would excite interest because it is unusual to see them there, and, for the same reason, I thought the report of a case of Malta fever in Washington would excite sufficient interest to justify this report, because Malta fever has never before been met with in Washington. It seems to be a general impression that Malta fever is limited to the littoral of the Mediterranean, where it is also known as rock fever, Levantine fever, Neapolitan fever, etc., but in the last few years, that is, since the medical officers of the Army have entered the tropics and studied the diseases of the tropics, its distribution has been found to be wider than was generally supposed. Its presence has been reported in the Philippines by Drs. Strong and Musgrave, and also in Porto Rico by Assistant Surgeon Walter Cox, U. S. A. It has also been reported in India and China.

Dr. Strong isolated the specific organism of Malta fever from a patient, and while working with the culture thus obtained, splashed some of it in his eye. This resulted in conjunctivitis and a general infection evidenced by a well-marked case of the fever. Dr. Strong was at that time an assistant surgeon in the Army, in charge of the Army Pathological Laboratory in Manila, and I saw him when suffering from the attack. Two or three cases have been reported in the United States, all of which were imported.

Malta fever is characterized by a series of febrile attacks, each attack lasting a week or more in typical cases, and followed by apyrexial, or relatively apyrexial, periods of several days or weeks'

\* Read before the Medical Society of the District of Columbia, April 1, 1903.

duration. The characteristic complications are rheumatic-like swellings of joints, profuse diaphoresis and anemia. Malta fever was formerly mistaken for malaria and typhoid fever, until the bacteriological researches of Bruce, Hughes, Gipps and Wright resulted in the discovery and isolation of the micrococcus melitensis and the demonstration that this organism caused the disease.

The disease begins generally with lassitude and malaise, similar to that of typhoid fever. Later there is headache, anorexia and pain in the muscles. The patient at first can attend to his usual duties, but gradually he is unable to do so and takes to his bed. The coated tongue, a congested pharynx, the anorexia, the epigastric tenderness are indicative of gastric catarrh. There is usually some cough. There may also be some delirium at night. The fever is usually of a remittent type, the thermometer rising during the evening and falling during the night, and the patient becoming bathed in perspiration towards morning. After a week or so of this type of fever the temperature begins to fall, gradually reaching normal, when the patient improves in every respect; or the temperature may undulate between normal and 100 degrees for a week or two and then rise steadily to 104. The usual duration of the disease is three months, on the average, but it may vary from three weeks to eighteen months. The most serious effect of the fever is the debility and anemia it entails. The mortality is low, only 2 per cent.

The disease has no pathological anatomy other than enlargement of the spleen; it is caused by the *micrococcus melitensis*, discovered in 1887, by Major David Bruce, R. A. M. C. This discovery, however, is of little use in diagnosis, as the organism is not found in the general circulation but in the spleen; but the physician rarely feels justified in invading the spleen for diagnostic purposes as there is considerable risk attached to the procedure. In three instances the inoculation of cultures of the micrococcus in man has been followed by the characteristic symptoms of Malta fever after an incubation period of 15 to 16 days. Young adults are most often attacked. Length of residence does not influence susceptibility. The method of transmission has not been definitely determined, and all classes are liable to it. It is not transmissible directly from one person to another. The incubation period has not been definitely fixed. Whether one attack confers immunity or not is a disputed point.

I first saw the patient, the subject of this report, January 16, 1903. He reached Washington from a term of service in the Philippines November 6, 1902. He had suffered to some extent in the Philippines, from fever which was believed to be malarial. After entering on the course at the Army Medical School he found considerable difficulty in attending to his duties. He had irregular fever from time to time, became quite anemic, easily tired, and often complained of his inability to make any mental effort. This finally culminated in his taking to his bed. He had been sick two or three days when I saw him, January 16. His temperature was 101 degrees, but in the course of two days rose steadily to 104. He was very anemic; had a rather marked dry cough; tongue somewhat coated; anorexia and at times some nausea. There was profuse sweating at night. The temperature dropped rather suddenly in the night about 2 degrees about the fifth day of his sickness, and then steadily declined to normal, where it remained one day and then began another ascent to 104; and, January 23, he was transferred to the Army General Hospital. During the paroxysms of fever there was delirium of a mild type at night. Headache was present but not prominent, as was also pain in the limbs. Quinine in considerable doses had no effect in preventing or modifying the steady rise in temperature when it once began. An examination of the blood for the *plasmodium malariae* was negative. There was no diarrhoea, no abdominal tenderness, no rose spots. The Widal reaction with the bacillus of typhoid fever was negative. The serum reaction, however, with the micrococcus melitensis was most decided as evidenced by marked agglutination. The germ of Malta fever reacts to the serum test in a more decided manner than the typhoid bacillus, and a weaker dilution (30 to 50) must be used; and it is as conclusive, if not more so, from a diagnostic point of view.

January 23, during the decline of the second pyrexial paroxysm, he was transferred by me to the Army General Hospital under the diagnosis of Malta fever. Through the courtesy of Major Borden, commanding the general hospital, I obtained the temperature chart of this case, and find that on the evening of January 23 the temperature was 101.2 degrees, and on the morning of the 24th it was 97 and fluctuated between 97 and 100.4, till January 31, when it steadily rose to 104.2 by the evening of February 1. It then gradually fell, with marked morning remissions, till Feb-



ruary 6, when it reached 97. It then fluctuated between 97 and 100 till March 2, when another rise began, reaching 103.8 by the evening of March 5, and falling rapidly to 97.4 by March 7. The record ceased March 17, probably because about that time the patient was transferred to Fort McPherson, Ga., I presume for a change of climate. In other words, during the two months the patient has been under observation the disease has presented the clinical features of Malta fever, and the serum reaction with the micrococcus melitensis has been confirmed by the course of the fever. There has been no swelling of the joints in this case, a feature which is prominent in a large proportion of cases of Malta fever, but it is not invariably present.

There is no specific for Malta fever and there is no drug known to influence its course. Excessive pyrexia should be reduced with cold baths or the wet pack; constipation relieved, and during a pyrexial period liquid diet should be given. Codein controls the cough when troublesome, and secures sleep without increasing the tendency to constipation. The debility should be combated with strychnia and tonics.

Whether this was an imported case from the Philippines or originated in Washington cannot be demonstrated. I have shown that Malta fever exists in the Philippines. This patient came from the Philippines where he had suffered from a fever believed to be malarial, and after arriving in this country had irregular attacks of fever with increasing anemia till he was finally obliged to take to his bed. On the other hand, a short time before taking to his bed he had been working with a culture of the micrococcus melitensis in the Army Medical Laboratory, and that such accidental infection can occur is proven by the case of Dr. Strong which came under my observation. I am of the opinion, after considering all the facts in the case, that it was imported. If it originated here it is the first reported case in this country.

**Dr. Neff** said that he had never seen a case of Malta fever, and therefore did not feel competent to discuss the paper. He wished, however, to congratulate Dr. Banister on the presentation of a model paper; it was concise, comprehensive and very interesting.

**Dr. R. S. Lamb** inquired whether there was anything peculiar about the conjunctivitis of Malta fever, and was answered in the negative.

**Dr. A. F. A. King** suggested that an insect might be the agent of transmission of the disease.

THE PRACTICAL MOSQUITO WORK DONE AT  
HAVANA, CUBA, WHICH RESULTED IN THE DIS-  
APPEARANCE OF YELLOW FEVER FROM THAT  
LOCALITY.\*

By W. C. GORGAS, M. D.,

Colonel and Assistant Surgeon General, U. S. Army.

In discussing this subject it will probably make the matter more clear, before describing in detail the work, to make some brief reference to the history of yellow fever previous to the Spanish-American war of 1898.

Yellow fever is probably an American disease, unknown to the old world before the discovery of America in the 15th century. There are references to a disease affecting the Indians about Vera Cruz, which depopulated the country and obliged Montezuma many times to replenish that locality. He sent 8,000 families to this neighborhood at one time, a few years before the arrival of Cortez. There are many references to obscure epidemics affecting the Spaniards in the West Indies and neighboring regions, which were probably yellow fever. Early in the 19th century the disease had become very widespread and severe, and looked as if it might become an epidemic disease of the world at large. The United States was particularly affected, and the coast cities from Boston to New Orleans were ravaged almost yearly by this fell destroyer. With the improvement in living and hygiene, which came about with advancing wealth and civilization, the area subject to the disease gradually decreased. The last serious epidemic in the United States occurred in 1878, but severe local epidemics occurred after that time. An enormous financial loss was caused the United States every year by the quarantines that had to be kept up, and the complete paralysis of all business caused by the local epidemics in the Southern States.

When the Army took possession of Cuba in 1898, one of its great objects was to control yellow fever in that island so that the importation of the disease into the neighboring States of the United States would not be a constant menace. The medical officers of the United States Army in the preceding twenty years had had a considerable experience in the protection of troops against this disease. They had found from experience that by moving an

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\* Read before the Medical Society of the District of Columbia, March 18, 1903.

affected command a very short distance, a mile or more, into a new locality, they could almost invariably get rid of the disease. So that, if military necessity allowed, we felt pretty certain that we could protect our troops. At Santiago we suffered very severely from yellow fever, for this very reason, that the military phase of the situation did not allow us to move away from it. In the next two years we had quite a number of commands affected with the disease, but were always able to free them from it by moving a short distance away. But we desired a great deal more than this. We wished, if possible, to eliminate Cuba as a point of yearly infection to the neighboring United States.

Havana was the fountain of infection for Cuba. In studying the history of the island we could see that the other towns could free themselves if they were not constantly reinfected from Havana. In Havana the disease was endemic, and had been so for the preceding 150 years. It was one of the ordinary diseases to which the non-immune was subject, and probably in this time not a month nor a day had passed without having cases of the disease in the city. Our plan was to put the city in first-rate sanitary condition and care for yellow fever as is done for any other infectious disease. Measures on these lines were vigorously started and carried forward. The death rate of 1898, about 100 per thousand, rapidly fell until at the end of four years, 1902, it had fallen to about 22 per thousand, a rate that compares very favorably with that of cities of similar size in the civilized countries of the temperate regions; but these measures had no favorable effect upon yellow fever. As the non-immune population increased the disease steadily increased, in spite of all our sanitary efforts, and the end of 1900 saw Havana in the clutches of one of her severe epidemics of yellow fever. The conditions at the beginning of 1901 were very discouraging. The city, in January and February of this year, was generally infected. The deaths from this disease during these months were more than usual, and as the non-immune population was continually increasing, due to the large influx of Spanish immigrants, I could see no reasonable hope for any improvement over the conditions of the preceding year. It was very obvious to me that our sanitary work was having no favorable effect upon yellow fever. The cleanest and best parts of the city were those most seriously affected; the large hotels and better class of houses where the Americans and well-to-do



non-immunes congregated. The city at this time was under military government, and I was the Health Officer for the city, having entire control of all sanitary measures, under the direct supervision of the Military Governor, reporting to him in person.

During the latter half of 1900, and the early months of 1901, a board of officers of the Army Medical Corps, of which Major Walter Reed was president, had been sent to Cuba for the purpose of investigating yellow fever. After working on various lines the Board determined to investigate the mosquito in its relation to this disease. Major Reed has stated that their attention was called to this insect on account of the general epidemiology of yellow fever, by Ross' work with regard to the mosquito and malarial fever, and by the paper of H. R. Carter, of the Marine Hospital Service, on the period between primary and secondary cases.

Dr. Carlos Finlay, of Havana, had been constantly writing since 1881, maintaining the theory that a particular species of mosquito, the *stegomyia*, was the carrier of yellow fever. Dr. Finlay himself was thoroughly convinced of this fact, but his experimental work was such that it was not conclusive to the scientific world at large. Major Reed and his confreres had come to Havana for other lines of investigation, and found themselves without funds for the considerable expense that would be involved in the proposed mosquito work. Although the Military Governor, General Leonard Wood, had no direct connection with or control over this board, Major Reed appealed to him in this matter, saw him in person, and unfolded to him the general plans. General Wood at once appreciated the great possible value of the work, and, without hesitation or delay, placed a liberal sum at Major Reed's disposal, which enabled the Board to proceed. The Board then went on with its work, and, in the most beautiful and absolutely scientific series of experiments, demonstrated that the mosquito was the intermediary host of yellow fever. With these demonstrations you are all no doubt familiar, as the work has been well described in several papers by Major Reed and his confreres. They demonstrated that the female *stegomyia* mosquito, if it bites a yellow fever patient within the first three days of the disease, may become infected with yellow fever; that a period of from 12 to 20 days from the time the mosquito bites has to elapse before she is capable of transmitting the disease.

After this time, and at any period during her life, if she bites a

non-immune human being, she is liable to give yellow fever; that a period of from two to six days, after the infected mosquito bites a non-immune, elapses before the development of the disease. They also showed that there was every probability that the disease was not transmitted by fomites of any kind, and that probably the only manner of its transmission is through the mosquito. This discovery was at once acted upon by the Sanitary Department of Havana. General Wood appreciated the importance of the work, and promptly granted the required money allowances and issued the necessary orders. The discoveries of the Board showed that there were two factors necessary for the development of yellow fever—non-immune human beings and the infected female *stegomyia* mosquito. If either were absent, the disease could not occur, or if they could be kept apart, even if both factors were present, the same result would occur. Therefore the following conclusions can be drawn: That for the elimination of yellow fever from any locality the practical work must be directed from these three points of view—against the non-immune human beings, against the infected female *stegomyia* mosquito, and in the endeavor to keep the two apart.

Under the first head, firstly, it is manifest that if there are no human beings in a locality there can be no yellow fever, and if the whole population were moved away from an epidemic region the disease would cease. This phase of the prophylaxis for yellow fever was put into effect at the fortress at Cabana, where a garrison of some 400 men became sharply infected, was moved out about half a mile into camp, and the disease at once entirely disappeared. An interesting instance in this local epidemic was the fact that the first case escaped notice. A soldier was discharged, took passage for New York, landed there three days afterwards, started at once for his home in Indianapolis, Ind., and a few days after his arrival died there of an entirely typical case of yellow fever. This was evidently a case in which the period of incubation was four or five days. But the moving away of the whole population would only be necessary where it was entirely non-immune, and only practicable where the population was small, such as an army post or a small village. In a city the size of Havana it could not be considered.

Secondly.—If there are no non-immunes present there can be no yellow fever, for it makes no difference how much the immune is

bitten by the infected mosquito, no yellow fever can be developed. So that, if non-immunes were gotten rid of, infected mosquitoes would gradually disappear, from natural causes, and in the course of a few months yellow fever disappear. This phase of the problem we attacked practically in two different ways: first, We endeavored to keep non-immunes from coming into the city, and, secondly, we endeavored to immunize those who were allowed to come in. To meet the first proposition, a large immigration station was established across the bay near Cabana fortress where all immigrants could be sent and kept until homes were provided for them. Every endeavor was made to get work in the country, and send them out into these non-infected regions without coming into the city of Havana. This immigration bureau was not connected with the Sanitary Department of Havana, but was under the direct control of the Chief Surgeon of the island, Colonel Havard, U. S. A. The work was very successful, and aided greatly in decreasing the number of non-immunes in the city. Secondly, we endeavored to immunize the non-immunes admitted, by biting them with the infected mosquito, and getting them a light attack of the disease. This plan of inoculating the non-immunes seemed to me, originally, the most hopeful field of practical work. It did not seem to me, in looking over the ground beforehand, that the destruction of the mosquito could be sufficiently general to ever eliminate the disease, but that if we could inoculate, as had been done in smallpox, it seemed to me the probabilities of eliminating the disease, or greatly decreasing the number of non-immunes, was very good. The experimental cases produced by the Army Board up to that time had all been light. The Spaniards, who made up the bulk of the non-immune population, believed that in coming to Havana they, of necessity, would have yellow fever, and they well knew that of those who contracted the disease, every third man would die. Under these circumstances they gladly availed themselves of an opportunity which promised a light attack of the disease, and care while they were sick. With this object in view the Sanitary Department organized a yellow fever inoculation bureau, and went vigorously to work along these lines. Dr. John Guitéras was placed in charge. Work for some time went along very satisfactorily, but it was soon found that the risk to life was too great. Three deaths oc-



curred among the inoculated patients from one batch of mosquitoes, and our inoculation method was stopped.

Under the third head—that of keeping the non-immune human being and the infected female *stegomyia* mosquito apart—we also went vigorously to work. To attain this object we had all cases of yellow fever promptly reported to the central sanitary office. At a station under the control of the Sanitary Department, ready-made screens were kept in stock, also wagons for their transportation, and a force of carpenters for their installation. Ordinarily, within two hours after the report of a case, the house, or quarters, of a suspect were screened, and such guard established that non-immunes were not allowed to have access to the patient. In this way the mosquitoes on the outside of the screened area were prevented from becoming infected, and those already infected on the inside were kept from straying abroad. This system in practical application was very effective. With the same object in view, non-immunes coming in by water from infected ports were taken care of at the quarantine station during the recognized period of incubation. This maritime quarantine was very efficiently managed by the Marine Hospital service.

As many of the neighboring towns were infected with yellow fever, we ran great risk of having yellow fever cases come from these towns. The business interests between Havana and these infected towns was so close, and the number of persons who were constantly going and coming so great, that a quarantine was not considered practicable by General Wood. The sanitary department, therefore, adopted the system of inspection known as the English system, the same as that adopted in England in the case of cholera. Medical inspectors were placed in all the infected towns within railroad communication of Havana, and on all the trains coming into Havana. All non-immunes coming into the city were reported by telegraph to the central office. These non-immunes were visited once a day by a medical officer while they remained in the city, and their temperature taken. The results of these measures were very gratifying. Business interests were not in the least interfered with, and, at the same time, the cases of yellow fever occurring among the non-immunes from these points were discovered and isolated. During the months of 1901, when this system was in force, 1,200 non-immunes came into Havana from these infected points, and of these 1,200, 26

cases of yellow fever developed, were discovered, and cared for. As far as we could find, no cases of yellow fever escaped us from this source. At any rate, yellow fever was entirely gotten rid of in the city during this time.

Under the second head were the measures directed against the mosquito—because it is manifest that if all the mosquitoes are gotten rid of there can be no infected mosquitoes. Against the adult mosquitoes no general measures were attempted, because it appeared to the Sanitary Department manifestly impracticable to destroy with any thoroughness all adult mosquitoes. But it was absolutely necessary to destroy those which had become infected, and with this object in view the following measures were adopted : At the same time that the wagons went out with the screens and carpenters for screening the quarters of the yellow fever patient, a squad of men, under a competent officer, accompanied the wagons, and at once went to work destroying all the mosquitoes in the rooms of the building outside the screened area. Generally the parties interested asked to have only the two or three rooms occupied by the yellow-fever patient screened. For this purpose every room was pasted up and made as nearly airtight as possible, just as is done in a formaldehyde fumigation. Then pyrethrum powder, at the rate of a pound to a thousand cubic feet of air space, was burned in the room, at the end of two hours the room was opened, and the mosquitoes on the floor swept up and burned. All mosquitoes are not killed by pyrethrum powder ; some will ordinarily be found simply stupefied, and will revive when given fresh air. Every room in the house was treated in this way. As it was possible that some infected mosquito might get into a neighboring house, all the contiguous houses were gone over and treated in the same way. On the average, about 150 pounds of pyrethrum powder were used to a case. This powder was used, although not by any means the best mosquitocide, because it caused no damage, and created very little opposition on the part of the persons concerned. A room could be occupied within ten minutes after being opened without causing any inconvenience to the occupant. Where there was nothing to be damaged, and where there was no objection, the fumes of sulphur were always used, and in the large tobacco and cigar establishments, where both pyrethrum powder and sulphur were objectionable, the fumes of tobacco were used. Both tobacco and sulphur

kill the mosquito, so there is no need for sweeping them out and burning them afterwards. This method of destroying the infected mosquito was entirely successful, and I am inclined to think would have alone eradicated yellow fever from Havana.

The other methods of mosquito extermination were directed against the larvæ. There are three principal genera of mosquitoes found in Havana—the ordinary black culex, the stegomyia and the anopheles. It was found that the stegomyia bred principally in the rain-water collections in the city itself; the culex everywhere, the anopheles principally in the suburbs in the pools and puddles well protected with grass. To meet these requirements two brigades were organized under the charge of Mr. La Prince, who had a very thorough knowledge of the habits of Havana mosquitoes. The work of the stegomyia brigade was confined to the built-up portion of the city. The city was divided into about 30 districts, and to each district an inspector and two laborers were assigned. The Mayor published an order requiring all collections of water to be so covered that mosquitoes could not have access, and providing that any person allowing the breeding of mosquito larvæ on the premises was liable to a fine. The water supply of Havana was very hard, and it was customary for every family to collect rain water for washing and other domestic purposes, so that in the large tenement houses there would be as many barrels of rain water as there were families. As the majority of these persons were poor, the Department, with their own carpenters, at public expense, covered the barrel, leaving a small screen opening through which the water could enter, and placed a spigot in the bottom from which water could be drawn. Every house in Havana, on the average, has a cesspool, and this cesspool generally has no means of discharge, the liquid parts simply seeping into the soil. These cesspools nearly all contain mosquito larvæ, though, in general, very few stegomyia, principally the culex pungen. The inspector was required to go methodically over his district, house by house, accompanied by his two laborers, who carried oil, brooms, etc. He reported daily on printed slips the houses inspected, and at the central office records of these inspections and checks upon the inspectors were kept. The inspector had from four to six ounces of oil poured into the cesspool, and, where the cesspool was not accessible, poured into all the closets that connected with the cesspool. All receptacles



containing fresh water that had not been fixed to comply with the law were emptied, and, if it were a second offense, destroyed, and where the subject was an old offender he was prosecuted under the law.

These measures were very effective. In January, 1901, in the area covered by the stegomyia brigade the report showed that there were about 26,000 fresh-water deposits containing mosquito larvæ. In January, 1902, for the same area, the report showed less than 400 deposits containing larvæ. Mosquitoes are everywhere decreasing, and in many parts of the city have entirely disappeared. For the suburbs, brigades, designated the "anopheles brigades," were organized for work along the small streams, irrigated gardens and similar places. This force ranged at from 50 to 300 men, and was also under the charge of Mr. La Prince. No extensive draining, such as would require engineering skill, was attempted, merely clearing the natural streams and gutters of obstructions and grass, and making superficial ditches through the irrigated meadows. Little or no oil was used by the anopheles brigade, it being found, in practice, better to get rid of pools breeding larvæ by the simple method of draining. The returns from this work at the end of a year were also very gratifying. It was very difficult to find water containing mosquito larvae anywhere in the suburbs at the end of that time, but I think the best evidence of its effectiveness is shown by the decrease in the deaths from malaria. In 1900, the year before the beginning of mosquito work, there were 325 deaths from malaria; in 1901, the first year of mosquito work, 151 deaths; in 1902, the second year of mosquito work, 77 deaths, and for the first four months of 1903, 16 deaths. The results with regard to yellow fever were still more striking. Although deaths from yellow fever were as numerous and as common as those from malaria, the disease almost immediately disappeared under the measures above indicated. The last case occurred in September, 1901, and at the end of the first year of mosquito work the disease had entirely disappeared. There has been no case of yellow fever originating in Havana since September, 1901, now nearly two years.

This mosquito work in Havana is of particular importance as demonstrating the possibility of freeing an infected tropical city from yellow fever, and of greatly decreasing the amount of malarial fever. It seems to me that the evidence points to the early

extinction of malarial fever also in Havana. Havana is the only municipality, to my knowledge, where mosquito work, carried on on a large scale and systematically, is the principal hygienic measure adopted; and if these two diseases, yellow fever and malaria, can be eliminated from the tropics, I do not see why the Caucasian cannot enjoy as good health there as in the more temperate regions.

**Dr. A. F. A. King** said that the paper was most interesting. Many had been somewhat familiar with some of the facts, having followed with interest Dr. Reed's able investigations. We were not familiar, however, with the methods used to exterminate the mosquitoes and yellow fever. He inquired as to how the pyrethrum powder was used for this purpose. The mosquito could be anaesthetized by blowing cigar smoke upon him in a glass tumbler covered with gauze, and he could then be studied under the microscope and the movements of internal organs observed; when he recovered he could be kept alive by feeding him on banana, and could be studied again when desired. Smoke, therefore, anaesthetizes the mosquito.

He was glad to hear Dr. Finlay mentioned, as he had originated the idea. Dr. Reed's studies primarily solved the problem as to the possibility and method of exterminating yellow fever.

**Dr. Gorgas**, in reply, said that the pyrethrum of the market was unreliable: hence they used in Havana the "Persian Insect Powder" sold by Parke, Davis & Co. It was not injurious to household goods, and the populace did not object to its use. On the other hand, sulphur injured fabrics, etc., and the strong odor of tobacco was objectionable. Each of these substances, however, was used in appropriate cases.

**Dr. S. S. Adams** asked whether infected immigrants were not constantly coming into Havana.

**Dr. Gorgas** replied in the affirmative. The immigrants were taken at once to a detention hospital, and were kept there under close observation until there was no longer danger of infection. The great object had been to do away with the agent of transmission, the mosquito, and thus eradicate the fever.

**Dr. A. F. A. King** had been informed by Dr. Reed that he was accustomed to smear camphor and oil of pennyroyal upon exposed parts of the skin to keep off mosquitoes, and he had thus escaped the disease, whereas Drs. Carroll and Lazear, who did not take this precaution, were both stricken with the fever.

**Dr. Woodward** said that if the war with Spain had done nothing more than to lead to the wonderful results attained by Doctors Reed and Gorgas, these had already repaid, and would hereafter repay many times over, the entire cost of the war in money and in lives. The ability to command ways and means went far to-

ward the accomplishment of the ends of scientific medicine, as was well illustrated in the matter now under consideration. Dr. Finlay had believed that the mosquito transmitted yellow fever, but he did not have the power and the money necessary to enable him to put his theory to a practical test. If Dr. Reed had been similarly situated, he, too, probably could have accomplished nothing. Dr. Gorgas and his associates were as fortunate as was Dr. Reed in being able to secure such legislation and money as was necessary to enable them to carry out their plans; had such legislation and money not been forthcoming, the accomplishment of the results already attained would probably have been long deferred. It was interesting to note that in Havana the health officer had power to remit fines imposed by judges for infractions of laws relating to sanitary matters, and that the health officer, therefore, came to be looked on by the people as their friend, whereas elsewhere the health officer could only prosecute, while the judge remitted the fines.

In discussing his work before the Society Dr. Reed admitted that it was possible that agents other than mosquitoes might be concerned in the transmission of yellow fever, since he had not been able to exclude them all by his experiments. Dr. Gorgas and his associates had, however, directed their efforts solely against mosquitoes, and in doing so had effectually prevented the spread of the fever. Under such circumstances it would seem to be conclusively proven that the mosquito was the only carrier of the infection of the disease.

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### CHOLELITHIASIS.\*

By J. FORD THOMPSON, M. D.,

Washington, D. C.

Dr. Thompson said that he had several times exhibited similar specimens before the Society. He had performed many operations for cholelithiasis, removing from 2 to 180 stones from each patient. One patient died from hemorrhage, a case of cholemia, and the only one in which he had met with this complication, although it was said to be not uncommon.

In the present case he removed 82 calculi. In one reported case 1,000 were removed, but they were as small as shot. Here, however, they were quite large, as large as a lima bean. There were none in the ducts. The patient was a woman, age 39, admitted to the University Hospital, Washington, March 30, 1903.

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\* Reported with specimens to the Medical Society of the District of Columbia, April 15, 1903.



Had her first attack of biliary colic twelve years ago, and the attacks had persisted ever since; recently she had had one daily. There was no jaundice. An exploratory operation confirmed the diagnosis, and the stones were easily removed. The patient was now well on her way to recovery.

Dr. Bobbs of Indianapolis was the first to perform cholecystotomy, in 1867; the patient recovered. Marion Sims appears to have done the second; his patient died, but to Sims is due the credit of having brought the operation prominently before the profession, as he described minutely the various steps. Lawson Tait did the first successful operation in England. It is now considered a safe operation, but there are some very difficult cases, and the operation is often tedious. Three hours were required by one skillful operator on account of the adhesions, atrophy of the bladder, etc. Dr. Thompson related the case of a patient on whom he operated two or three years ago. The case was apparently simple, but the patient continued to discharge bile for an unusual length of time. He attempted to explore, but the patient was seized with some inflammation and suddenly died. The autopsy disclosed a stone, in an inaccessible situation, which he had failed to remove. One case of stone impacted in the cystic duct gave him much trouble; later the patient died of cancer of the gall-bladder and liver.

Three-fourths of all cases occurred in women. While the calculi remained in the bladder they might not cause symptoms. The pathological effects were biliary colic, obstruction of the ducts, septic infection leading to suppuration of bladder and ducts, ulceration, perforation and abscess of the liver. The usual forms of bacteria were the bacillus coli communis, streptococcus and staphylococcus.

When there was much inflammation of the walls, excision of the bladder was the operation, if one could be sure that the common duct was open. It was astonishing what large stones could pass through the ducts into the intestine, and also that so many small ones remained in the bladder or ducts.

**Dr. Smith** asked if it was possible to make a diagnosis between gall-stones and cancer of the gall-bladder, or cancer of the head of the pancreas, the posterior wall of the stomach, the liver, or other adjacent structures. Both might occur synchronously, and the symptoms were very similar. The pain of gall-stones was

more paroxysmal, it was true, but could we make a diagnosis with any certainty without an exploratory operation, particularly if no tumor was present? The differential diagnosis was very difficult, to say the least, and impossible in some cases without an exploratory incision.

**Dr. Keech** asked whether calculi were ever passed in the form of sand or grit. He mentioned the case of a man 65 years old who, one year ago, had an attack of impaction of the colon. He was relieved with difficulty by high enemata. Two weeks ago he had another attack, and when the colon was finally cleared by high injections, 2 or 3 ounces of sand came away.

**Dr. I. S. Stone** said that Dr. Smith's question was very interesting and practical. Many interesting results had been noted at autopsies. Dr. Thompson's patient had previously been under Dr. Stone's care, and he had suspected gall-stones. The history was not striking. Many physicians expected jaundice in all cases, but this should not be looked for if the stone was in the bladder or cystic duct. A few years ago he operated on a case for Dr. Wolhaupter. The woman had had several attacks of colic. There was no tumor. After much suffering she consented to an exploratory operation. Three small stones were found, about the size of buckshot. Since that time, five years ago, she had not had a symptom. It seemed almost impossible that these small stones could cause such severe symptoms. On the other hand, large ones often gave no symptoms whatever. It was only in passing that they gave rise to pain.

In some hospitals these operations were becoming as frequent as appendicitis operations. He saw twenty or more patients in one hospital in Chicago who had been operated on for biliary obstruction. Calculi rarely caused cancer, but they were often associated with it. It was possible, however, that they could cause cancer by "irritation." The presence of cancer undoubtedly favored the formation of calculi. In some parts of the United States cholelithiasis was more common than elsewhere; perhaps the climate and diet had an etiological importance.

In 1888 Tait told how simple the operation was. It was then very rare. Tait was a remarkable man and rarely made a mistake. If the surgeon waited for a tumor, he would usually find one stone impacted in the cystic duct, preventing the escape of bile from the bladder and thus causing the tumor. In some cases the operation was very difficult owing to adhesions, inaccessibility of the stones, etc. The average surgeon could easily detect a stone in the common duct if he made the proper incision; nevertheless calculi had been inadvertently left by the best operators.

**Dr. J. Dudley Morgan** spoke from a medical standpoint. There were very few physicians who did not see these cases once in a while. The surgeon rarely saw the patient in the acute stage, as the physician had usually given relief, and the tumor caused by

the distension of the gall-bladder had to a greater or less extent disappeared. He related a case in which there was doubt as to the diagnosis of cholelithiasis. Fecal examinations were negative at first, but on the third day three calculi were found. Examination of the feces should be longer continued, especially if there were pain, fever and jaundice.

**Dr. R. S. Lamb** also spoke from a medical standpoint. He suggested five-grain doses of sodium glycocholate in cholelithiasis. How the remedy acted was not known, but when the calculi were small it seemed to dissolve them, and the patients recovered.

**Dr. R. H. Graham** said that he was much interested in both the specimens and the discussion. Two years ago he saw an unusual case of cholelithiasis. The patient had been deeply jaundiced for six months, and was taken to Johns Hopkins Hospital for operation. The surgeons there failed to agree as to whether the case was one of malignant disease or cholelithiasis, but finally decided on the former, and sent the patient home. Dr. Graham, believing that the case was one of gall-stones, ordered the following: A teacupful of olive oil at night, followed by a tablespoonful of the oil and a tablespoonful of sodium phosphate three times a day. Within a week or ten days the patient passed a gall-stone weighing eighty grains. She fully recovered, and was now in the best of health.

**Dr. Friedrich** recollected Dr. Thompson's case—88 stones were removed. He had recently treated a patient from whom 7 large calculi were removed. Olive oil and sodium phosphate were of no avail in the case.

**Dr. Thompson**, in closing, expressed the belief that gall sand could be passed, but he had never seen such a case. In the case reported by Dr. Graham, the stone probably ulcerated through into the intestine, the treatment hastening the process. Large stones were usually discharged in this way; they rarely passed through the ducts. An operation was the proper treatment, particularly in view of the fact that the procedure was so simple and successful. Even if one or more stones were discharged as a result of medical treatment there was no certainty that others did not remain to give trouble. In answer to a question by Dr. Barnes, he stated that in his experience the X-ray had practically proven a failure as an aid to diagnosis of cholelithiasis.



CASE OF AMYLOID LIVER AND SPLEEN IN ULCER-  
ATED PULMONARY TUBERCULOSIS.\*

By D. S. LAMB, A. M., M. D.,

Washington, D. C.

The specimens are from a colored woman, age 16, who had epileptiform seizures for which the right side of the skull was trephined by Dr. E. A. Balloch, and the spasms nearly ceased. She died in hospital February 9, 1903. The emaciation was marked. There were scars of pregnancy on the abdomen. The opening of trephining had not yet healed and the dura was adherent thereto. The brain was normal and no lesion was found to explain the spasms. There was advanced tuberculosis, deposits and cavities in both lungs, tubercular bronchial glands and post-sternal glands. Large amyloid liver with old adhesions and amyloid spleen. The kidneys were pale, but did not appear to be amyloid. Amyloid degeneration is said to be common in advanced tuberculosis, but I have not often noticed it.

**Dr. Acker** said that according to his experience amyloid degeneration of the spleen following tuberculosis was rare.

**Dr. Chappell** said that the symptoms of epilepsy obscured those of tuberculosis and made the diagnosis less clear.

**Dr. Balloch** said that the epileptic convulsions were the result of a blow on the head received in childhood. He operated, removing a button of bone and relieving pressure, with the result that the number of convulsions fell from one daily to one in two or three months. There was no doubt as to the correctness of the diagnosis of tuberculosis. The disease developed two or three months after the trephining, and the patient was under observation for a year afterward.

**Dr. Claytor** said that amyloid disease very often resulted from syphilis, tuberculosis and suppurative diseases. He was surprised to hear Dr. Acker say that it was rare.

**Dr. Shands** agreed with Dr. Claytor. Many patients suffering from chronic suppurative joint diseases died from amyloid disease.

**Dr. Acker** explained that he had referred only to children. Any form of degeneration of these organs in childhood was rare.

**Dr. D. S. Lamb** explained that he had stated that amyloid disease was *said* to be common after tuberculosis and chronic suppurative affections, but in his own experience it was not. He had rarely found amyloid degeneration in subjects with tuberculous cavities, etc.

\* Reported with specimens to the Medical Society of the District of Columbia, April 8, 1903.

## THE NORMAL AGE OF MAN.\*

By T. A. R. KEECH, M. D.,

Washington, D. C.

It has been said, and wisely said, "The proper study of mankind is man." The practicing physician who continues his studies is the best equipped for the study of man.

Some years ago, in leisure moments, sometimes on my way from one patient's home to another's, I noticed individuals, their movements, features, expression of countenance, manners, et cetera. At one time I studied the features, actions and general appearance of persons I knew and met, for the purpose of guessing mentally at their ages, and, when propriety would allow it, ask the age, to learn how nearly my mental conclusion was correct. By practice I became quite expert, and found I could approximate the age within a year, and sometimes within six months. This was only a pastime, but became very interesting and led me to other observations and study.

I commenced to think of what Nature intended as the "normal length of the life of man." The subject became more and more interesting to me, and finally I reached the conclusion that the normal age of man was about 100 years. My conclusions were based on the following facts: First, that young persons were not fully matured before about 25 years of age; second, that many persons continued active and in full vigor, mentally and physically till about 75, and then lived in declining life to 100 years or more. I formed the opinion that man was about 25 years, or one-fourth of the normal life, arriving at full maturity, two-fourths in full vigor, and one-fourth in declining life. After reaching these conclusions I consulted some literature on the subject. I was astonished to find in the *American Cyclopedia*, Vol. 1, page 180, title "Age," that so many scientists had studied and written on the subject. There I learned that a French physiologist, P. Flourens, had written a book entitled *Human Longevity*, which I found in the Congressional Library, translated—a work well worth reading—in which he mentions and quotes a number of scientific authors who have studied and written on the subject, chiefly Buffon and Haller. Flourens says that man is mature at

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\* Read before the Medical Society of the District of Columbia, April 15, 1903.

the age of 20 because the epiphyses become attached by bony union at that age. I contend, however, that, notwithstanding this fact, he is not fully matured, physically or mentally, before about 25, that the bones and muscles are firmer and stronger at 25 than at 20, and that men are able to endure more prolonged physical exertion. There is abundant proof of this, and also the mind is capable of better work at 25 than at 20. Flourens later admits this fact.

In the article in *Appleton's Cyclopaedia* Dr. Van Owen is mentioned as having found 17 cases of persons who lived to or over 150 years of age. Mr. Bailey, in his record of longevity, gives a list of three or four thousand cases of centenarians, not a few as high as 150 and some as high as 170 years of age.

Pliny, in the narrow limits between the Appenines and the Po, found, in the census by Vespasian, fifty-four who reached 100 years; fourteen, 110; twenty, 125; forty, 130; forty, 135; thirty, 140 years. In the town of Valsatium, near Placentium, six aged 110; four, 120; one, 150. Peter Czarten, a Hungarian, was born in 1539, died in 1724, at the age of 185 years. It is said a man is now living in Russia aged 200 years; he claims to have proof of his age. Sophocles lived to 90; Zeno, 95; Democritus, 99; Pyzro, 90; Diogenes, 90; Isocrates, 98; Georgias and Hippocrates, called the Father of Medicine, over 100 years. Haller quotes two examples of extreme life, one reached 150 years, one 169 years, and thinks life may be prolonged to 200 years by proper living and favorable conditions.

I have records of 23 centenarians ranging from 100 to 120 years. Thomas Cooksey Ward, St. Mary's Co., Md., near Charlotte Hall, was born Nov. 23, 1793, is now living and in good health. Capt. Diamond, of San Francisco, aged 106, earns his own living and rides a bicycle.

In 1899 this Society, through its committee, requested the directors of the Census to enumerate all persons in the United States, with their condition, aged 100 years and over. We could not obtain the condition; the number may surprise some of you, it was 3,536. There were probably as many or more at that time between 90 and 100. There are probably as many or more centenarians now than there were in 1900. I have collected a list of 23 of 100 years or more.

I had a patient a few years ago, Andrew Hoover, who had a



carbuncle on his neck, accompanied with erysipelas of his face and head, which caused his death in his 99th year. If he had followed my advice I believe he would have recovered and reached the 100 mark or more. Up to the time he became sick he earned his own living. I know a colored man living here I believe to be 102 years old. I have not referred heretofore to the age of the antediluvians. We know nothing about them except what is said of them in the Bible, with which you all are familiar. There is, however, one remarkable suggestion by a scientist, Buffon, I believe, and perhaps by others, that they were of enormous size as well as enormous age; that they were probably two or three hundred feet tall and large in proportion. This is amusing and interesting, if not true.

Can a practical deduction be made from what I have said? Is there not a law of nature which enables so large a number to reach the age of 100 years and more? I believe there is, and I will refer you to several cases not yet mentioned to demonstrate this view. Flourens mentions an Italian, Cornario, who was wealthy, and lived sumptuously every day. At the age of 32 he became sick, his doctors told him he could not live more than two years, after telling him the cause of his illness. After due reflection he determined to try a course of strict dieting, taking 12 ounces of solid food and 14 ounces of wine at two meals. In due time he recovered his health and, while he adhered to this diet, remained well. Later his friends thought he was starving himself, and induced him to increase it. He then took 14 ounces of solid food and 16 ounces of wine; in 12 days he became sick. He then returned to his former diet and recovered, regaining his health and cheerfulness. In his 95th year he composed an amusing play, and when 100 years old he wrote his autobiography, and was cheerful and happy to the end of his life.

Ebenezer Mathews, of Wellsburg, Pa., celebrated his 101st birthday September 23, 1902. His maxims for longevity are: Live according to the Scripture, don't use tobacco, abstain from the use of all intoxicating drinks, take exercise in the open air, don't eat too much—intemperance in eating is as fatal to long life as intemperance in drinking—go to bed early and rise early. In every instance of longevity I know of, they all say that the secret of their long life and good health is temperance in eating as well as in drinking, retiring to bed early and rising early, with plenty

of out-door exercise and moderation in all things. The reverse of the maxims of the centenarians quoted—excess in eating and drinking, late banquets and late suppers, too great anxiety about the affairs of life—all tend to shorten life.

Let us now consider for a few moments the higher part of man's being, his intellect. Within a few hours after an infant is born, if allowed to do so, it will begin to take nourishment nature has provided for it ; knows how to do that, and that is all it knows. That is instinct. At five or six months it begins to show signs of intelligence. If a normal child, the brain will develop as its body grows till it reaches maturity. Does the brain cease to develop then? By no means ; the brain, the organ of intelligence, continues to improve by observation and study almost to the latest period of life, and, by the acquisition of knowledge gained by study and experience, is able to perform the best mental work of life at an advanced period of life. I will mention a few instances to illustrate this. Mr. Gladstone was prime minister of that great empire on which the sun never sets, at or above 80 years of age, and was the master spirit in conducting its affairs. Bismarck, the Iron Chancellor, was the master spirit in conducting the affairs of the great German Empire at almost 80 years of age. I will give one instance in our profession. A physician was called to see a child in Philadelphia, evidently suffering great pain. The attending physician, a young man, tried hard to diagnose his case, but failed. Dr. Physic, then in advanced life, was called in consultation. The moment he entered the room the child stopped crying at once. Dr. P. said : "There is nothing the matter with the child but the earache." The attendant was astonished, and asked the doctor how he could know so quickly. Dr. P. replied : "By the symptoms," and proved his correctness by manipulation, and left the room, and the attending physician to treat the patient. The instances mentioned show that in many persons the mind does not lose its vigor and ought not, in any person, before three score and ten or four score years, and in some instances it is retained later. In many cases we see, "It is the sunset of life gives us mystical lore."

Finally, let us consider briefly the causes that shorten life. Some, I think, are antenatal, some are postnatal. We cannot expect healthy children to be born of unhealthy and enfeebled parents. How often do we see, born of such parents, babies almost or quite

moribund at birth and, if not dead, requiring great effort by the medical attendant to make them start an independent life. How often do we mentally say: "This mother will not be able to nurse her babe"; if at all, imperfectly. Then, if the babes cannot get the nourishment an all-wise Creator intended for them, they are often fed on the worst kind of substitute—condensed milk, *et cetera*. If they survive until they are a few years old, they are fed on other improper food, also candy, cake, *et cetera*, with other grossly improper indulgences, to manhood and womanhood, to produce other children like themselves. There are other parental causes of enfeebled infants; the most common and potent, in my opinion, is tight lacing, crowding the viscera down into the lower narrow part of the pelvis. Every gynecologist and surgeon knows this and sees such cases every day, probably furnishing a large part of their practice.

The postnatal causes of abbreviated lives are numerous, chiefly over-indulgence of the appetite, excess in eating, and drinking of alcoholic stimulants, excessive use of saccharine food, too much condiment with food, excessive use of coffee and tea, too great exciting pleasures, theaters, horse racing, &c.; insufficient outdoor exercise, sedentary habits, too great anxiety in acquiring money, and late retiring at night and late rising in the morning. Chief of all of these, excessive and improper food and stimulants, excessive venereal indulgence and insufficient rest at night. The recumbent position is the only way the heart and lungs get rest: they require rest as well as other parts of our anatomical structure.

With all the discouraging conditions and causes which prevent the human race from living out its natural or normal life, I seem to see in the future a light to encourage us, a better knowledge of diseases and their causes, improved ways of treating them, and a more general knowledge of how to live. When this knowledge becomes universal, then will come the millennium of man's normal life—greater usefulness and happiness.

**Dr. E. L. Morgan**, referring to the age of Methuselah, said that we do not know whether the "year" of the ancients was a season or not. As to giants, judging from the weapons and other relics of prehistoric man, the individuals were not much larger than at the present time. The important point as to the aged was their mental state. What if men did live to be centenarians but were imbecile—no one would care to live in that condition. Some centenarians, however, could saw wood. As to temperance in living,



men of olden times who were supposed to have lived longer than we, had harems galore, and many of them were credited with drinking to excess. Noah was said to have become drunk. Some centenarians actually attributed their length of life to drink.

**Dr. Woodward** said that while he had no figures that would support the belief, he was under the impression that in this community, at least, in proportion as the accuracy of family records diminished, the number of persons of extremely great age increased. Absence of accurate records was associated with ignorance and credulity, and the three led to exaggeration. There was no "normal age" for mankind as a whole. The length of life of a given individual depended on the relation which existed between his vitality and his environment. Given a certain vitality and a certain environment and the so-called "normal age" of man would represent a given figure. If the antagonism of the environment to the wellbeing of the individual was increased, or if that property of the individual to be termed vitality was decreased, the normal age of the individual would be diminished. If, on the other hand, the antagonism of the environment was diminished or the vitality was increased the normal age would be greater.

**Dr. Muncaster** knew a patient named Smith who was 105 years old. Also a Mrs. Raub, 105 years old. He had the record of a family servant who was 110 years old.

**Dr. Chappell** agreed with Dr. Woodward that there was no such thing as a normal age for man. Heredity, as well as environment, determined longevity. Healthy ancestors and a hygienic life tended to make an individual live longer than his parents, and thus the average length of life of man could be progressively increased. Marriage, however, had a leveling tendency: individuals with a tendency to long life often married those of the opposite sex who were destined to a short life. He knew several aged patients, one a woman nearly 100 years old, and she was vigorous in mind and body. She was born in 1807.

**Dr. Stone** recalled how children look upon a man of 50 as being old; at 50, men of 60 seemed young and those of 70 not very old. There was no real proof that the ancients were superior to men of today either as regarded stature or longevity. There had probably been no great changes in this regard. Dr. Keech had presented a very interesting paper, and he thanked him for it. It might have been well, however, to have given it the title "The Age Limit of Man." He was not sure that Dr. Keech had established the normal age; it was relative only, and could not be fixed. Some men at 50 were as old as others at 60 or 70. Dr. Osler had said that "we are as old as our arteries," and this was true. After 50 we were not certain as to life, and every decade told fearfully on the vitality. Pneumonia, operations, etc., were of much graver import after 50.

TWO CASES OF PACHYMENINGITIS HEMORRHAGICA  
INTERNA.\*

BY D. S. LAMB, A. M., M. D.,

Washington, D. C.

I. A woman, age 55, was brought to the hospital, unconscious, and died two days afterward. History not obtainable. She was well nourished; there was paralysis of right side of face; tongue when protruded turned to the right; paralysis of motion and some paralysis of sensation of right arm and leg; several spasms. I made the post mortem examination and found a hemorrhagic membrane on the inner side of the dura over the convexity and also at the base of the brain; the cerebral vessels were atheromatous and there was a large hemorrhage into the left lateral ventricle and the extraventricular substance; the fornix had broken down and blood had found its way into all the ventricles. There was an old hemorrhage in the right striatum. There was also some fibroid change in one lung, bony growths on the right side of the bodies of thoracic vertebrae, patches of old pericarditis, atheroma of coronary arteries and ascending aorta, old adhesions of lungs, liver and spleen, small granular kidneys, and atrophy of spleen, uterus and ovaries.

II. The second case was a man, also aged 55, and who also suddenly died. The post mortem examination was made by several physicians, including myself, was limited to the head, and no clinical history was received. The object was not to determine the cause of death, which had been already recorded as pulmonary tuberculosis, but to determine and estimate the value of any intracranial lesions that might be found.

The lesions found may be briefly stated as follows: Some engorgement of vessels of scalp; a thin layer of pinkish yellow membrane containing hemorrhagic points on inner surface of dura of left convexity; dural sinuses full of dark blood, mostly fluid; patches of opacity in the arachnoid; pia mater somewhat hyperemic on left side; brain weight while fresh was 51 oz.; vessels atheromatous, not calcareous; some ventricular dilatation on right side with corresponding increase of fluid; and several small old hemorrhagic areas, one in the left thalamus, one in the left lenticular nucleus, and several quite small ones in the pons.

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\* Reported with specimens to the Medical Society of the District of Columbia April 8, 1903.

The microscopic examination was careful and thorough, verified the hemorrhagic areas, but added little positive information otherwise. The physicians agreed in the macroscopic and microscopic findings, but disagreed as to their valuation, half of them holding, largely on the principle that "many mickles make a muckle," that some commensurate mental or moral disturbance, or both, doubtless existed during life. The other half, relying on the microscopic examination, considered that assumption unwarranted.

The specimens are presented, however, to illustrate the fact that the condition of internal hemorrhagic pachymeningitis is frequently found when it has not even been suspected, and where no definite symptoms can be connected with it. Some writers say that it is rarely found outside of insane asylums, and regard it as especially suggestive of paresis. Others, on the contrary, regard it as of little or no account, in the degree shown in the specimens presented.

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## THE NEED OF A HOSPITAL AND BETTER FACILITIES IN WASHINGTON FOR THE TREATMENT OF NERVOUS DISEASES.\*

BY I. S. STONE, M. D.,

Washington, D. C.

It is a most remarkable situation indeed that Washington, with its population of 300,000, has no suitable hospital provision for the treatment of a large number of persons who may be classified as "nervous," who have either organic or functional disease of the nervous system. It is generally admitted that many of these patients can be treated in hospitals far more satisfactorily than in their homes, and there is at the present time but little objection by patients to hospitals.

The development of the hospital idea has made a revolution in the attitude of the public toward institutional care of the sick. To prove this, one need but observe the constantly increasing demand for hospital beds, which has been greater during the last decade than at any other time in the world's history. Formerly it was the rule that none but the very poor should have hospital

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\* Read before the Medical Society of the District of Columbia, April 8, 1903.



treatment, while now we observe that the tide has turned, and we see a large number of the wealthy and of the intelligent middle classes seeking relief where all the modern conveniences and requirements for scientific and skillful treatment may be obtained. Therefore we see in every other city, as in ours, extension of hospital facilities, expansion of the hospital idea, until we literally have provision for prompt and efficient medical or surgical treatment at our very doors.

It would be interesting to follow this line of thought further and discuss the result of all this change in public opinion and its effect upon the medical profession, the elevation of the standard of professional attainment, and also the effect upon the doctor's income. But time and space are not sufficient for all this, and we will now see what has been done to provide for the treatment of the large number of those having some disease of the nervous system, as we question our ability to properly care for and treat these cases under present conditions.

We observe in our conversation with our friends what may be called a general agreement that Washington has no suitable provision for special treatment of these cases. It is not my intention to underestimate the outfit of any hospital in this city, nor is it my desire to detract from the professional ability of any physician who has exceptional knowledge of these diseases. What we do wish to emphasize is this: without a hospital and its appropriate outfit, no one at the present time can expect to successfully treat and control his nervous patients any more than can the surgeon do his best work outside of a hospital. More than this, we believe that there is room for the comment made on all sides, that as we have no suitable hospital provision for these cases, there is almost necessarily no suitable place for the development of a clinic with its opportunity for study of cases, which is absolutely indispensable to the cultivation of our knowledge in this as in any other branch of medicine.

That such an institution is needed here seems beyond question. It is as universally admitted as that the institution is practically absent. The science of neurology is, therefore, in our opinion, not abreast of the advance in other lines of medical improvement. Not only is this want felt in Washington, but in a large area west and south of the city, for we know by correspondence with many physicians that we are expected to provide for the care of these

cases. It has been to myself an almost constant regret and annoyance to have patients sent elsewhere for treatment which should be afforded in this city. If my observation is not altogether exceptional, we have here enough neurasthenics alone in need of treatment to more than fill a hospital of large size. These patients are unfortunate and often insist upon radical treatment, surgical or otherwise, and I fear their distress and importunity too often prevails, in the absence of something better, or at least something which offers another chance for cure, *without* operation. We ought to cure many women of neurasthenia who are subjected to surgical treatment, and we could cure many who are susceptible of proper treatment, in a hospital with suitable outfit and all the necessary appointments, who can be cured in no other way. We believe the best way to provide for the treatment of the class mentioned is to secure an appropriation from Congress, and have a suitable building erected, which should be fitted with all the modern instrumental and other appropriate paraphernalia, including electro- and hydro-therapeutic appliances, which are found in well-regulated institutions of the kind. Then the most careful selection should be made to secure competent visiting and resident physicians. A strong central committee might succeed in creating a favorable public sentiment, and a society might be organized whose object should be nothing less than the ultimate building of the hospital itself.

The Orthopedic Hospital in Philadelphia, in some respects, may be taken as a model of what we need, although the building is far from what we may call modern in its appointments. A considerable portion of the funds is used in treating orthopedic cases which could be cared for in a general or a children's hospital. But we always look upon this hospital as preëminently for nervous diseases, perhaps because Dr. Wier Mitchell has succeeded in giving it the impress of his personality. We find here the successful application of the "Rest Treatment" to be sure, but not this alone, for we see by the report of the hospital that many cases of organic disease are admitted.

As an index to the diseases treated in the Orthopedic Hospital we quote the following from the report of the hospital for 1902: Alcohol habit, 2; locomotor ataxia, 12; chorea, 11; epilepsy, 5; hysteria, 30; insanity, 3; insomnia, 2; melancholia, 11; morphine habit, 1; neurasthenia, 87; sciatica, 3; lateral sclerosis, 6; brain

tumor, 8; total patients in hospital, 266; new dispensary cases, 806; old cases, 3,016; revisits for massage, electricity, etc., 3,656; grand total, 7,478.

#### AN ALTERNATIVE.

As we have plainly indicated above, we believe that a hospital for the special treatment of nervous diseases should be provided for the citizens of the City of Washington and the District of Columbia.

But there remains something to be done which ought to be accomplished without delay and which is quite within the reach of at least some of our hospitals. In view of the necessity for special treatment of nervous patients we have the following suggestions to offer:

1. That special wards should be provided in one or more of our hospitals for the accommodation of patients who have either neurasthenia or any one of the so-called "nervous diseases."

2. That qualified physicians be appointed on the visiting staffs of such hospitals, whose chief duty should be to direct the treatment of such cases.

3. That the hospitals should also provide suitable rooms for treatment by all modern apparatus, both electric and massage.

The extra expense incurred by such patients in our hospitals at the present time is all wrong and out of proportion to the cost of other treatment. For instance, the cost of hand massage involves an extra charge of six to twelve dollars per week, making it almost impossible for those in limited circumstances to have the treatment and pay the other hospital charges, not to speak of the physician's fees.

We would have this most important aid to treatment supplied in our hospitals just as we require other prescriptions filled, without extra charge to those unable to pay.

I am informed that in the Orthopedic Hospital in Philadelphia a poor woman, the victim of neurasthenia, can have the same needle bath, the benefit of the "Baruch treatment," or any electric or massage applications that her wealthy sister can obtain.

Such treatment could and should be provided in our hospitals in this city.

A word may be said as to the comparative value of special hospitals, and wards in other hospitals for nervous diseases. The



special hospital is plainly and clearly needed, and with as much reason for its existence as could be given for the existence of any other special hospital. But we believe that such an institution cannot afford space enough for all applicants, and we are of the opinion that other hospitals should at least make additional effort to care for the patients above mentioned. Upon inquiry in Philadelphia, we found that it was quite difficult to get a room or bed in the Orthopedic Hospital; that applicants frequently must wait for long periods before obtaining admission.

We need the special hospital because here should be available every scientific aid to treatment and cure which is known to the medical profession. In the other hospitals the outfit need not be so complete or expensive, yet sufficient for most cases of functional nervous disease. In the special hospital should be found one or more physicians who are willing to give their whole time to the study and treatment of these diseases, and also furnish instruction to their associates and any members of the medical profession who may need or desire such an opportunity.

As we have already mentioned in this paper, patients in rapidly increasing numbers are demanding hospital treatment, and we think there is a relative increase in the benefit received by patients having any serious or persistent illness. Therefore it would appear to be a perfectly natural sequence to make provision for the reception of such nervous patients in a hospital where they can have the best possible treatment for their diseases. That many of the so-called nervous patients would be pay patients is beyond question. We believe that a properly conducted hospital for nervous diseases ought very soon to pay all expenses from its pay-patient fund. But we are here for the purpose of advocating public, rather than private, hospitals for these patients, although it has occurred to me as very remarkable that some enterprising physician or physicians have not made the effort to establish such an institution in or near this city. While we advocate a public hospital for this purpose, it is not possible under our present conditions to furnish free treatment to all patients, and hence rooms should be provided for private patients as we have in other hospitals.

The question naturally arises in the minds of some, Should insane patients be admitted into such a hospital? My answer to this question is most decidedly in the negative. While a few cases

of melancholia of mild type, and easily restrained, might with propriety be treated, we emphatically object to the combination of "asylum" with such a hospital.

Finally, and in conclusion, the writer offers the above suggestions with the hope that the members of the Medical Society may thoroughly discuss the matter, and that we may eventually see our efforts crowned with success.

**Dr. A. B. Richardson** said that he heartily concurred with Dr. Stone in the position he had taken in his admirable paper as to the necessity for better hospital facilities for the hospital treatment of nervous diseases. These diseases were not afforded proper treatment in a general hospital. They required facilities and equipment which the general hospital did not usually possess. The environment should be especially adapted to their condition. What might be denominated the *moral* treatment was most important, and the treatment must be greatly prolonged. Most cases of nervous disease were walking cases. They required opportunity for fresh air, recreation and diversion. Hydrotherapy, electricity, massage and methodic exercise were also very important elements of the treatment. This city was abundantly large enough, with the territory tributary to it, to justify the establishment of such a hospital. He presumed, as a fact which explained the absence of such a hospital thus far, that Washington lacked two or three active, well-equipped and thoroughly progressive neurologists. If we had a few such, a greater incentive would be given to the work required in its establishment. Such a hospital might be private, established and maintained by private contributions, or entirely public, provision for its equipment and support being made by appropriation by Congress. Perhaps the latter might be considered most desirable. In view of the number of hospitals now receiving their support, in part at least, from the Government, and of the recent legislation establishing a municipal hospital, he feared the probability of receiving congressional aid for another and special hospital was slight.

He believed that if Dr. Stone would enlarge the scope of his suggestions so far as to include the treatment of alcoholics and drug habitués we would find much less difficulty in establishing such a hospital. Dr. Richardson could not let the opportunity pass without impressing on the Society the necessity for doing something to aid these classes. No more pitiable and helpless persons than these ever asked our aid. They were sources of constant menace to society and the public in general, and of immeasurable unhappiness and anxiety to their families. Whatever was done, he hoped their necessities would not be overlooked, and he would cheerfully coöperate in any movement that might be made which had in view their proper care and supervision.



They were in reality just as helpless and just as irresponsible as the insane, and should be held to be so by the courts. They should be placed under guardianship, and authority should be given for their forcible sequestration and proper treatment. He believed the Society could do much to arouse public sentiment on the subject, and hoped all would join in encouraging any movement that might be inaugurated to this end.

He could see no reason why such a hospital as was suggested might not be so arranged as to provide satisfactorily for all these classes, if sufficiently liberal provision was made. It should afford opportunity for considerable classification; there should be separation of the classes, and there should be sufficient room for recreation and amusement to obviate the unpleasant contact of the various classes, and, as already stated, legal authority should be given to detain them under treatment and to enforce this treatment, whenever found necessary, by judicial action.

He would gladly coöperate in any effort which the Society might deem justifiable, and hoped the paper by Dr. Stone would prove the starting point from which something tangible would result.

**Dr. D. S. Lamb** said that he believed there once was a hospital here for nervous diseases under the control of Dr. Edes. He asked for information on the subject.

**Dr. E. L. Morgan** said that a suggestion was made at the time the founding of the Episcopal Eye and Ear Hospital was under consideration, to establish a hospital for the treatment of alcoholics, drug habitués, etc.; but in spite of the fact that there was a crying need for such an institution, and no need whatever for an eye and ear hospital, the suggestion did not receive the slightest approval. Neither the clergy nor the members of the Episcopal Church gave it their support, and as a result a hospital was founded for which there was no need, in view of the existing facilities, to the exclusion of an institution for which there was and is the greatest need. In view of these facts, he was inclined to doubt whether the present project would receive the support necessary to carry it out.

**Dr. Keech** favored the suggestion. But we needed a hospital for the care of inebriates and drug habitués more than one for nervous diseases. The latter could well be made a subsidiary part of the former. There was great need for such an institution; it would relieve both the patients and their families. It could only succeed as a hospital, not as an asylum. He suggested that the best way to further the project would be for a committee from the Society to urge upon the Commissioners and Congressional Committees the urgent need of such a hospital. Provision should be made for the legal commitment of patients to the institution, when necessary.

**Dr. Stevenson** emphasized the fact that inasmuch as all persons



were more or less influenced by sentiment, the institution should be known as a hospital for the treatment of nervous diseases. Inebriates and drug habitués and others should receive treatment, but this feature of the institution should be kept in the background so far as public announcement was concerned.

**Dr. Reyburn** said that he was in deepest sympathy with the project, and he would gladly do all that he could to make it a success. There was the greatest need of such a hospital. No class of patients was more pitiable than that referred to. Hystero-epilepsy could be treated. He related a recent case which he would have sent to such a hospital had one existed; the patient could not be committed to an insane asylum, and no other hospital would take her in, and yet she stood in urgent need of hospital treatment. We should do something ourselves before applying to the authorities. The institution should be partly public and partly private. He earnestly hoped that the project would be carried out.

**Dr. J. Taber Johnson** said that it took a brave man to urge upon the authorities the establishment of another hospital, even for nervous diseases. According to the newspapers, from three to five millions were appropriated this year to repair old and build new hospitals, including the additions to the Government Hospital for the Insane. He emphasized the need of a hospital like the one suggested by Dr. Stone. These patients required more time, labor and special skill than all other classes combined. The existing facilities in our city were totally inadequate. All of us had had patients whom we would have sent to such a hospital, patients who were not suitable for treatment at an insane asylum, or who could not be treated there, for one reason or another. While other specialties had made rapid progress here, the specialty of nervous diseases had been sadly neglected. There was a great field for such a hospital in Washington. It should be wholly public, not private, and should be under municipal control; thus no one connected with it could be regarded as having an axe to grind, and it could not be looked upon as a personal matter. There should, however, be as many private rooms as were needed. Along with nervous diseases, alcoholism and drug habits should be treated also. As a matter of policy, however, it should be known as a hospital, not as a home or asylum. While it was true that a former effort failed, he believed that this was destined to succeed if it was properly managed, as there existed a long-felt want.

**Dr. J. Dudley Morgan** said that the treatment of nervous diseases was one of the most difficult problems in medicine. It required a broad range of knowledge, a proper diagnosis and a proper appreciation of the finer elements of human nature. Too often the chiefs of asylums were picked from among those who had failed in medicine for one reason or another, and, as a last

resort, they were appointed on the staff of sanitoriums. Properly equipped and managed, a hospital for the treatment of nervous diseases in the District of Columbia would be a blessing; poorly equipped or poorly managed, it would be worse than none. The present facilities were wholly inadequate.

**Dr. A. F. A. King** said that no one doubted the need of such an institution here, but the question was how to get it. As an entering wedge, he thought that it would be well to appeal to the authorities to set apart a portion of the new municipal hospital for the care of inebriates, drug habitués, etc. This would be a good beginning, and a separate building might come later.

**Dr. S. S. Adams** endorsed this suggestion, but thought that it would not reach the paying class, who would not go to a municipal hospital. He was not connected with the Episcopal Eye and Ear Hospital, and therefore had no ax to grind, but he did not think it well to deprecate the founding of an institution which had already proved a success. He wished that we had just such energetic and earnest men on this project. That was what we must have if it was to prove a success. We must do something ourselves before applying to the authorities.

**Dr. E. L. Morgan** explained that he did not deprecate the founding of the hospital; what he did denounce was the attitude of the Episcopal Church, which, while preaching temperance, was unwilling to give its support to the founding of a hospital for inebriates.

**Dr. Woodward** expressed surprise that no mention had been made of the fact that Congress had authorized the expenditure of about \$500,000 for the erection of hospitals in this District, and had actually appropriated \$300,000 of the amount authorized to be thus spent. Of the amount thus appropriated, \$250,000 was for the extension of private institutions. It would appear, therefore, that there might be a reasonable hope of securing congressional aid toward the erection of the desired hospital if it could be made clear that such a hospital was needed. There was, however, no reason why wards for the treatment of nervous disorders and other wards for the treatment of inebriates should not be constructed and operated as a part of the proposed municipal hospital. Before the treatment of inebriety could be successful it would be necessary to have legislation authorizing the detention of inebriates without their consent.

**Dr. W. L. Robins** heartily endorsed the plan. A certain percentage of patients treated at asylums were dismissed as cured within two to six months, 15 to 30 per cent., according to a recent investigation. It was a shame that such patients must be stigmatized by residence in an asylum when they might be cured in such an institution as was now proposed.

**Dr. Stone**, in closing the discussion, said that time would not allow a discussion as to the classes that might be admitted to a

hospital like the one proposed. His idea had been to start the ball rolling. The institution should be known as a hospital, not as an asylum. As had been said, there were many cases which could be treated there for which no provision was made in the hospitals now existing in this city: inebriates, drug habitués, neurasthenics, etc. He cited instances in illustration. Papers upon organic nerve diseases were rarely presented before the Society; this would seem to indicate that we were not studying these diseases as we should. Such papers would be much appreciated.

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### CASE OF EXCISION OF THE CAECUM FOR SARCOMA IN A WOMAN WHO HAD HAD SYMPTOMS OF APPENDICITIS.\*

By I. S. STONE, M. D.,

Washington, D. C.

Miss X, age 27, had the usual symptoms of appendicitis, beginning on a Sunday in March, 1903; had some pain at McBurney's point, a rise of temperature to 101 or more, and pulse correspondingly rapid. On Monday the symptoms were very much the same, Tuesday a consultation was held, Wednesday she had tenderness rather than pain, and there were no symptoms of peritonitis. Her bowels had been well opened by the usual purgation, and there was no distension of the abdomen. A small mass about the size of an English walnut could be felt, and was thought to be the diseased appendix. The temperature and pulse had improved since the beginning of the attack, and her condition was excellent; an immediate operation was suggested, and was done the same afternoon. When the appendix came into view I was surprised to find no evidence of disease, but a little further examination showed that the mass we had discovered was a malignant growth of the colon a little above the insertion of the ileum. In order to prolong the patient's life we promptly undertook the resection of the bowel, which was done in the following manner: Rather more than two inches of ileum and nearly four inches of colon were removed, with the appendix and adjoining mesentery. The ileum was sutured into the colon with No. 1 catgut for the mucous coat, and fine silk for the muscular and peritoneal exter-

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\* Reported to the Medical Society of the District of Columbia, April 22, 1903.



nal surface. As the two ends of the excised bowel were of different sizes, it was necessary to modify the manner of placing the Czerny-Lembert sutures. Accordingly we made a fold of the mucous surface of the colon at each alternate interrupted suture, which seemed to be a perfectly natural proceeding and served to reduce the caliber of the larger bowel to that of the smaller without the least delay or trouble. In closing the muscular and peritoneal surfaces we also had no trouble in adjusting the bowel, and the operation was concluded in a very short time, obviating all anxiety about the passage of a metallic button. The opening at the point of union was nearly or quite the size of the small bowel, and we felt a sense of satisfaction which one always enjoys if the conditions are such as to favor the suture rather than one of the bone or button methods. Finally, we made an effort to remove all the enlarged glands in sight or near the field of operation, but we regret to say that we were unable to predict a permanent cure, as we had hoped. The recovery from the operation was ideal, as may be seen from the chart, and the patient went home comfortable three weeks afterward.

**Dr. J. Ford Thompson** had had a similar case two weeks before; suppurative appendicitis in a man 35 years old. He was addicted to the use of opium, and had had a number of attacks. The last was very severe, and Dr. Thompson advised operation, but it was postponed a week. At the operation he found an enormous inflamed mass, but no pus. The appendix could not be found. The mesenteric glands were enlarged, and the mesentery itself was so much damaged that he thought the patient would die; he therefore made an anastomosis with the Murphy button, colon to ileum, and then incised the mass, thinking that the appendix might be within, but it was not. Further examination showed that most of it had disappeared, and only the stump remained. Great difficulty was encountered at the operation on account of the condition of the tissues. After four or five days a fecal fistula formed. Afterward the man was doing so well that he opened the wound, removed the button and stitched the lower part of the colon over again, but to his amazement the man never rallied. The case was puzzling; he believed that it was one of tuberculosis. He never before saw such a mass. It had caused the damage to the mesentery.

Today he had operated on a similar case, and, with difficulty, found the appendix. There was an enormous mass, and he made a diagnosis of abscess, but there was none. He removed the appendix, left the mass *in situ*, and dressed the wound openly. The

mass of indurated tissue gave great trouble at the operation. He believed that these masses were usually tubercular. His anxiety to cure the fecal fistula in the first instance before the patient left the hospital caused him to open the wound. In a number of cases excision of the head of the caecum for sarcomatous disease had been successful.

**Dr. Stone** said that the case taught a good lesson, and he hoped that members would report all such cases. It was remarkable that there should be presented so near together two specimens, one of sarcoma and the other of carcinoma of the caecum. At the operation the aortic glands were found slightly enlarged; he removed all he could, and was sure that this prolonged the patient's life. The woman was doing well, and the loss of the ileo-caecal valve apparently caused no trouble; like the appendix, it had no practical value. In conclusion, Dr. Stone reviewed the methods of performing the operation, and stated that he could not understand how Dr. Thompson could say that sarcoma was not as malignant as carcinoma.

**Dr. Thompson** replied that it was because the glands were oftener affected in carcinoma.

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## CASE OF ENDOTHELIAL SARCOMA OF URINARY BLADDER.\*

By D. S. LAMB, A. M., M. D.,

Washington, D. C.

The subject was a patient of Dr. T. C. Smith; Dr. J. Ford Thompson in consultation. A white man, age 66, who died Jan. 6, 1903. The post mortem examination by me showed the following: The body much emaciated; skin pale yellow; right eyelids swollen and reddened (said to be due to recent erysipelas). A line of healed suture in right side of abdomen; corresponding to which were peritoneal adhesions of abdominal wall to greater omentum and small intestine. Spleen large and soft. Right kidney showed some atrophy and pelvic dilatation, and ureter also dilated from pressure of tumor. Left kidney enlarged, doubtless by compensation. Bladder distended with urine and contained a few small, rounded calculi; a sarcoma at the base, which on examination by Dr. James Carroll, U. S. Army, proved to be endothelial. Between the bladder and right pelvic wall and

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\* Reported with specimen to the Medical Society of the District of Columbia, April 8, 1903.

adherent to each was a firm, broad, flat, new growth of the same character. It is of course a question as to which was the primary mass.

**Dr. T. C. Smith** said that the history of the case illustrated the difficulty of making a diagnosis in some instances. He first saw the man last September, when he was far advanced in malignant disease. There was intense pain in the right iliac region radiating down into the thigh; this looked like an exaggerated sciatica. The man evidently had malignant disease, but it was impossible to locate it. Dr. Thompson performed an exploratory operation, but could find nothing to explain the symptoms. There never were any symptoms referable to bladder or kidneys. The constipation was attributed to anodynes. The patient died of exhaustion. The only diagnosis was malignant disease, location undetermined.

**Dr. J. Ford Thompson** said that he had little to say, as he found nothing at the operation. He saw the man last summer with Dr. Kolipinski, who had treated him several months. Dr. Thompson had made out malignant disease, but could not locate it. After several examinations he did an exploratory operation, as stated. The bladder was not suspected at any time. As the man suffered most in the epigastric region, the incision was made above the umbilicus; otherwise the location of the growth would probably have been discovered. The patient recovered from the effects of the operation and lived months afterward, but was not benefited. There was a partial paralysis of the right leg, and so it was thought possible that the growth involved the spine. Such a tumor to the right of the spine, pressing on a spinal nerve, might have explained the pain. No indication of tumor, however, was found anywhere.

Exploratory operation was justifiable in such cases, but he never before had found so little as in this case. He had known the patient for 30 years, and was very anxious that a diagnosis should be made, so that he could be cured.

**Dr. Chappell** asked Dr. Thompson whether he made an examination per rectum. Dr. Thompson replied in the negative.

**Dr. Chappell** asked whether such an examination would not have revealed the seat of the trouble. Dr. Thompson replied that it might have done so; there was, however, nothing to indicate a rectal examination.

**Dr. Lamb**, in closing, said that there was no interference with micturition. He believed that the tumor originated in the pelvis, and extended to the bladder by contiguity. The pain was caused by pressure of the growth on the great sciatic nerve. The prostate was not involved. The left kidney was larger than normal, the enlargement being probably compensatory.



DRUGS AND THEIR ADULTERATIONS AND THE  
LAWS RELATING THERETO.\*

By H. W. WILEY, A. M., M. D., LL. D.

The term "drug" may be defined either by quoting the words of the dictionary or by the standards of the pharmacopoeia and dispensatory, or from the point of view of the medical practitioner. There may be also a definition given from the point of view of the consumer. I will not take up your time in this paper to quote the dictionary definition of drugs, nor will I quote from the definitions of the pharmacopoeia and the opinions of practitioners. I will define the term rather from the point of view of the consumer, or the common point of view, and describe a drug as any remedy or prophylactic intended for internal or external use. I would exclude entirely from the term "drug" any substance handled by pharmacists for purely technical purposes, and when substances which are used both as drugs and for technical purposes are to be defined I would describe them in the one case as a drug and in the other, not a drug. For instance, alcohol which is used very commonly as a remedy for internal and external use in this sense would be a drug, but alcohol used for technical purposes, as, for instance, fuel or for chemical processes in making extracts, or in the manufacture of smokeless powder, or for making ether, would not be a drug.

For the purposes of this paper we will assume that we agree upon the point that drugs are useful. I know there are some schools of medicine which would lead us to believe that remedies of the kind I describe are rarely of any value and often prove harmful. In particular instances, we doubtless would all agree that this statement is true. There are cases of disease beyond the reach of any drug, and there are thousands of cases, doubtless, where the administration of drugs proves harmful; yet it would be casting an unjust imputation upon the experience of medical men of thousands of years and upon the skill of our chemists and pharmacologists to doubt the utility, the desirability, and even the necessity of drugs.

Drugs are administered for medical purposes for specific reasons. There is doubtless a large empirical practice, and an enlightened empiricism is one of the bulwarks of medicine. By reason of

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\* Read before the Medical Society of the District of Columbia, April 22, 1903.

individual idiosyncrasy the specific action of a drug cannot always be foretold; hence the administration even of those remedies whose effects are best known is often, to this extent, an experiment. There is, however, a general consensus of opinion in regard to the action of a well-known drug upon the average organism, and the standards, both for the strength of the drug and the magnitude of the dose, must be based largely upon such an experience. Thus at the very outset of a discussion of this problem it is evident that the first thing to be determined is the standards of purity and strength.

In order that these standards may carry the proper weight, they should be ascertained by experts appointed by the Government or selected by competent organizations or interested parties. In this country the standard for the purity and strength of drugs is fixed by the United States Pharmacopoeia, and the experts who determine these matters are selected by the American Pharmaceutical Association, thus representing the highest expert and technical knowledge in the country. The United States Dispensatory, although perhaps equally valuable in every respect in regard to its standards, carries less official weight, since it does not represent any organized body of men.

The object of the United States Pharmacopoeia is to determine the standard properties of the drugs most commonly used, to describe those properties, to establish rules for their determination, and to fix standards of purity therefor. It would be foolish to claim that a work of this kind was perfect in every particular, but to deny its high value and utility would be to discredit the whole science of pharmacy. Perhaps its greatest fault is that it does not contain an up-to-date description of new drugs which are added to those at the disposition of the physician in great numbers every year. Appearing only at decennial periods, it necessarily follows that a vast number of new drugs in common use are not supplied by the pharmacopoeia until they have been in vogue for many years. This fact, taken in connection with the inability to describe in a single volume every substance used, has been urged as one of the chief objections to the pharmacopoeia. Nevertheless, it is of the highest value, and, in so far as it goes, a satisfactory tribunal to which may be referred all questions concerning the strength and purity of drugs described therein.

*The Character of Drug Adulteration.*—Having established a base

on which comparisons can be made, we are able to proceed a step further in this discussion and describe the general principles of drug adulteration. The problem here confronting us is very different from the adulteration of foods. In the latter case one of the important species of adulteration is found in the addition of poisonous or deleterious substances. This principle could not be established in regard to drugs, since many of the most important drugs are of the most poisonous character. The chief practice in the adulteration of drugs is the substitution of less expensive materials for the more expensive. This is the universal principle of commercial adulteration, and is illustrated with equal force both by the sophistication of food and drugs. A remarkable instance of this has been lately investigated by the health officer of New York City, who found that phenacetin, which is a drug commonly used for headaches, had been replaced by acetanilid in a great many cases. Acetanilid is very much less expensive than phenacetin, and also has some of the same general properties. It is, however, a much more dangerous drug than phenacetin, and for this reason its presence in remedies, which are often purchased without a physician's prescription and used indiscriminately by the public at large, is rendered very dangerous. In the report of the health officer of New York on these cases the following statements are made :

"Phenacetin is an antipyretic so commonly used that it may practically be considered a household remedy, and is almost universally dispensed by druggists over the counter without a physician's prescription. The usual dose is from five to ten grains.

"The wholesale price of phenacetin is approximately \$1 per ounce, while that of its usual adulterant or substitute, acetanilid, is about 25 cents per pound. The financial inducement to substitute is consequently great.

"As will be seen by the results obtained in this laboratory, however, acetanilid is not the only adulterant in use.

"The samples examined were collected with the assistance of the division of inspections. In all, 373 samples were analyzed, collected in the boroughs of Manhattan and Brooklyn. Of these, 58 were pure phenacetin as labeled, 315 were adulterated or were cases of substitution.

"Of the adulterated samples 267 were mixtures of phenacetin and acetanilid, 2 were mixtures of phenacetin and sugar, 4 were mixtures of phenacetin and starch, 32 were pure acetanilid, 4 were mixtures of acetanilid and cane sugar, 1 was a mixture of



acetanilid and milk sugar, 3 were mixtures of acetanilid and starch, 1 was antipyrin, one was quinine sulphate.

"The prices paid by the inspectors for three 10-grain powders varied between 15 and 30 cents. A fair average would be 20 cents. If pure phenacetin is sold at this price, an ounce, costing \$1, is sold for \$3.20, a profit of over 200 per cent. Such a profit, however, does not appear to be sufficient. Acetanilid, costing about 2½ cents per ounce, is substituted and sold at the same price as pure phenacetin.

"No valid excuse can be made for this form of dishonesty. The claim cannot even fairly be made that in some cases the druggist himself is the innocent victim of a fraud, for the reason generally given to justify the enormous percentage of profit charged by pharmacists is that the charge is made for the skill and special knowledge required in dispensing drugs, and not for the intrinsic value of the drug sold. This appears to be a fair claim, but then, not to apply this special knowledge while charging for it would be a fraud in itself. Moreover, ignorance and carelessness in dispensing drugs is, if anything, more dangerous to the public than deliberate dishonesty."

Perhaps one of the most important of the problems that is presented in this connection is to ascertain what attitude should be taken towards the almost numberless trade-marked and so-called patent medicines with which our markets are flooded. I do not think there is any question of the absolute right of any manufacturer to make any useful product and advertise and sell it to the best advantage, provided the product is not deleterious and is capable of doing what is claimed for it, and is sold under a label which does not deceive or tend to deceive the purchaser. In the matter of drugs which are officially described in pharmacopoeias and dispensatories and other official lists, it may be said that they have a right to be recognized and sold in the markets under their own proper names. On the same principle, it may be justly claimed that no one has a legal or moral right to sell these products under any other name than their own, no difference what the character of that name may be. I think, therefore, that we may lay down as a broad principle, which should be lived up to by the manufacturer and the dealer, that no trade-marked remedy, copyrighted article, nor patent medicine should contain any active substance described under its proper name in any of the standard authorities relating to pharmaceutical preparations. Whenever combinations of these standard drugs are made they should be compounded on the prescription of a competent physician, and

dispensed on his order and not under any fanciful or assumed name. Let us consider for a moment one of the very common substances used in trade-marked or patent preparations, namely, alcohol. Alcohol as a drug has specific uses. Its properties are described in the pharmacopoeia and other standard registers; the quantities in which it should be administered are prescribed, and its physiological and remedial effects set forth. Alcohol, therefore, as a remedy, has a standard position in the profession, and it is not right nor just nor honest that it should masquerade under any assumed character or name of any description. Of course, I do not refer now to any official tinctures of which alcohol is a part, because the strength and character of these tinctures are duly set forth in the pharmacopoeia, but I speak of the presence of alcohol in preparations bearing names which do not in any way indicate the presence of this remedial agent.

There are two sources of danger in the use of preparations of this kind. One is in the effect of the alcohol itself when not prescribed by a regular physician, in its possibilities of doing injury to the system; the other is the danger of forming the alcohol habit, which may result in utter disaster to the patient and bring him to a life of misery and poverty. Similar remarks may be made concerning those preparations, sold under trade-marked names, which contain cocaine. There are many catarrh remedies which contain this alkaloid and which are indiscriminately sold and used. The results are that the cocaine habit is acquired by many persons who are perfectly innocent of any knowledge of taking the drug at all, and thus most lasting and serious injury inflicted.

A short time ago I received a very pathetic letter from a person who had acquired the cocaine habit by the use of a remedy for catarrh. It was not until the habit was thoroughly established that the victim was made acquainted with the nature of it. These are only illustrations of how a drug sold under a name which does not indicate its character may produce most serious results. The laws of the United States forbid the transmission through the mail of poisonous substances for general distribution or personal use, and the wisdom of this law certainly will not be questioned. For a similar reason the law should prevent the distribution in any way of drugs the names of which conceal their identity from the consumer or which mislead him in regard to their nature or even

fail to indicate their presence. Nostrums which possess no dangerous qualities can safely be left to the ingenuity of the advertiser and the gullibility of the consumer. The element of mind influence in such cases may not be without value, although it is a question of considerable importance whether it is advisable to influence the body by exciting emotions by fraudulent means. The violent reaction which must come from a discovery of such cheating subterfuges would certainly undo all the benefits which they might have conferred through the influence of the mental attitude upon the bodily functions. I believe it is unquestionable that the state of the mind does influence the functions of the body in a marked degree. For this reason any reasonable effort to induce a favorable state of mind in the case of a sick person is praiseworthy, but this effort should not rely for its chief means upon falsehood, deception and misunderstanding.

It would be interesting to present a list of the trade-marked, patented and proprietary remedies which are offered for sale in such unlimited quantities and so skillfully and thoroughly advertised, which contain drugs recognized in the pharmacopoeia and other standard authorities. I think perhaps we will be surprised to see that the great part of such remedies consists of materials in more or less concentrated form whose properties are described in the pharmacopoeia and whose prescription should rest solely in the hands of the physician. I do not make a plea for the restriction of any legitimate trade. I believe commerce should be absolutely untrammelled in so far as it can be left so without affording opulent opportunities for fraud, deceit and injury. The selling of articles under innocent sounding names, however, is no part of legitimate commerce, and, therefore, the whole trade in trade-marked, proprietary and so-called patent remedies is tainted with suspicion. I would not think it necessary to alter the name or the formula of these compounds. Many of them are doubtless made up according to the prescriptions given by the most successful and skilled physicians, and to this extent are combinations excellent in nature and highly suitable for the special purposes for which they are intended; but I do believe that the printing of the formulas showing the composition of the article should be required in every case.

The offense against the community is much more pronounced when in preparations which normally contain alcohol and which



are intended as remedies for internal and external use ethyl is replaced by methyl alcohol. It is well established now that there is a marked tendency in methyl alcohol to produce atrophy and paralysis of the optic nerve. Of the many cases in which blindness has resulted from the use of methyl alcohol there is not one recorded instance of a cure. The atrophy and paralysis of the optic nerve are permanent. There is a large class of bodies intended for internal and external use in which this substitution has been made. One instance is found in bay rum, in which the ethyl alcohol has sometimes been replaced by methyl. Another important instance is jamaica ginger. At the present time, February 3, 1903, a suit which is becoming quite noted is in progress in Baltimore before the superior court, arising out of the fact that Dr. George Brelun, a citizen of the State of Maryland, bought a number of bottles of jamaica ginger from a firm in Baltimore. Partaking of the jamaica ginger in successive doses from these bottles Dr. Brelun began to lose his vision and finally became totally blind. He has now brought suit against the firm from which the jamaica ginger was obtained for \$25,000. It is alleged that there was no ethyl alcohol at all in this sample, and that it had been wholly replaced by wood spirit. This is only one illustration of the many instances of adulterations of this kind. It will be interesting to know the result of this action.

A report on drug adulteration was submitted to the meeting of the American Pharmaceutical Association of the United States, in Philadelphia, in September, 1902, by the chairman of the committee, Prof. E. L. Patch. A long list of drugs was examined by this committee and those found adulterated covered almost the whole field of ordinary drugs.

The whole subject of the purity of the drugs and chemicals of the United States was treated very thoroughly by Dr. Victor Koblentz, in an address lately given before the New York Section of the Society of Chemical Industry. The paper is too long even for an abstract. It covers thoroughly the items which are commonly adulterated. Another most important contribution to this subject has been made by Mr. Lyman F. Kebler in the paper entitled, "Some Recent Drug Adulterations," published in the *American Journal of Pharmacy* for March, 1902, pages 138 and following. The same author, in the *American Journal of Pharmacy*, in January, 1901, has an interesting article on the "Adulteration

of Essential Oils" which are often used as remedies. A general article by the same author on "The Adulteration of Drugs" appeared in the *American Journal of Pharmacy* in January, 1902. One of the most important subjects in this connection is the widespread occurrence of arsenic not only in drugs but in many of the common materials used in the household. Many such articles have been recently examined in the Bureau of Chemistry by Mr. J. K. Haywood, with the following summary of results :

"A large number of the foreign countries have laws regulating the amount of arsenic allowable in wall papers, fabrics other than dress goods, and dress goods ; but the limits of the amount of this substance are very different in the various countries.

"The only State in the Union which has such laws is Massachusetts, where in wall papers and fabrics other than dress goods .1 grain to the square yard is the maximum amount of arsenic allowable, while in dress goods and articles of wearing apparel .01 grain per square yard only is allowable.

"Work done by Gosio in Italy and Prof. C. R. Sanger in America indicates that those moulds, which set a volatile arsenic compound free from organic substances containing arsenic, grow better upon substances containing only a small amount of arsenic. Therefore the latter investigator expresses a very grave doubt, as to whether the limits set by Massachusetts are low enough.

"During the course of our study we have already examined 364 samples of domestic wall paper, one of which contained more than .1 grain per square yard, three of which were very near this limit, one hundred and twenty contained small amounts (.015 to .062 grains per square yard), ninety-four contained traces, one hundred and forty-six none at all.

"Of one hundred and sixty-one foreign papers sold in this country and examined by us, two contained more than .1 grain per square yard, nine were very near this limit, ninety-two contained small amounts (.015 to .062 grains per square yard), thirty-four contained traces, and twenty-four none.

"Of thirteen samples of shelf paper that were examined, none contained more than .1 grain per square yard, none were near the limit, four contained small amounts (.015 to .062 grains per square yard), one contained a trace, and eight none.

"Of eight samples of fabrics used for hangings and pillow covers, none contained more than .1 grain per square yard, none were near the limit, three contained small amounts (.015 to .062 grains per square yard), one contained a trace, and four none.

"Of five samples of crepe paper none contained .1 grain per square yard, none were near the limit, two contained small amounts (.015 to .062 grains per square yard), three contained traces, and none were free from arsenic.

"Of thirty-six samples of dress goods examined, two contained more than .01 grains per square yard, one was nearly to the limit, seven contained small amounts (.0015 to .0062 grains per square yard), eight contained traces, and eighteen none. The two samples containing above the limit were a piece of turkey-red cloth and a piece of black and purple calico.

"Of nineteen samples of stockings examined, three contained more than .01 grain per square yard, no others near the limits; ten, small amounts (.0015 to .0062 grains per square yard); six, traces; and none that were free of arsenic. The three samples that gave large amounts of arsenic were ladies' black hose.

"It will thus be seen

"(1) That domestic papers are much better than foreign in so far as the arsenic content is concerned.

"(2) That although only a few American wall papers examined contained large amounts of arsenic, these few are used by a very large number of persons.

"(3) That black stockings are very apt to contain large amounts of arsenic.

"(4) That there seems to be no reason why manufacturers should not be compelled to keep the amount of arsenic in wall papers down very low, since this is shown to be possible by at least two or three firms, one of which in particular had twenty-three papers of variegated colors, yet none contained arsenic, and another had thirty-six papers, none containing more than .01 grain per square yard, none containing near this limit, five containing very small amounts, twenty-three a trace and eight none at all."

This subject has also been treated by Mr. Kebler in an article entitled "The Presence of Arsenic in Chemicals," published in the *American Journal of Pharmacy* for January, 1903.

Two years ago an epidemic occurred in the midland district of England, resulting in the death of many hundreds of persons and the serious illness of many thousands. This disease exhibited the characteristics of peripheral neuritis, passing gradually on to general paralysis and death. A rigid examination finally showed that the cause of the trouble was due to the presence of arsenic in the beer so universally consumed as a beverage in England. Arsenic is one of those poisonous bodies which act in a most destructive manner. Extremely small doses apparently produce no perceptible effect, but the continued use of even minute doses of arsenic, owing to the cumulative character of this insidious poison, is apt sooner or later to produce most serious results. It is of the highest importance, therefore, that our



common drugs should be carefully examined for the presence of this substance, which probably when present is always so accidentally and never intentionally.

In the Bureau of Chemistry, owing to the fact that the drug laboratory has just recently been established, very little has been done in the way of ascertaining the purity of drugs.

A few years ago, when it was charged in one of the States of the Union that a certain brand of cod liver oil contained morphia, I purchased about a dozen samples of all the standard brands of cod liver oil and emulsions and examined them for morphia. Not a trace of this drug was found in any of the samples which came under my notice. I am inclined to believe that if such an adulteration of cod liver oil has ever been practiced it certainly has been extremely limited in its extent.

When serving as an expert with the Senate Committee on Manufactures during the late investigation of the adulteration of food and drugs, I purchased seven samples of cream of tartar in the markets of New York. Only three of the number were pure cream of tartar; two contained no cream of tartar at all, but consisted of mixtures of calcium phosphate and calcium sulphate; two of the samples were composed partly of cream of tartar, one contained 24 per cent. and one was almost pure, containing almost 93 per cent. Of course, cream of tartar can hardly be considered as a drug when sold for use in baking powders, yet it is one of the standard drugs kept by pharmacists. It is not probable that anything like 60 per cent. of this drug is adulterated, as shown by the purchases I made, yet the fact that in the random purchases of seven samples so large a percentage should be adulterated is evidence of extensive frauds in this line.

#### STATE INSPECTION OF DRUGS.

In the inspection of drug products in the various States, probably Massachusetts has the most practical system of operation. In the report of the State Board of Health for 1890 it is stated, on page 640, that the number of drugs examined during the year for which the report was made was 758. Of these only five were considered to be amenable to the penalties of the law. These complaints were all successfully prosecuted by the State, and conviction before the court obtained in each instance. The first of these cases was for the adulteration of precipitated sulphur; the second

and third for the adulteration of tincture of iodine ; the fourth for the adulteration of tincture of opium, and the fifth for the adulteration of glycerin. The above list does not include 16 convictions for selling brandy in confectionery. It is evident from the above that the Massachusetts authorities are careful not to bring any action into court where the evidence is not entirely sufficient to secure conviction. This is shown by the fact that of the total number of prosecutions brought during the year mentioned under the Food and Drugs Act, viz : 94, 89 convictions were secured. The number of prosecutions and convictions, however, in Massachusetts does not show by any means the percentage of the samples of drugs examined which failed to reach the required standard. On page 627 of the report for 1900, it is stated that out of the whole number of drugs examined, viz : 758, 381 failed to conform to the requirements of the statutes. It was only in cases where it was evident that the adulteration had been deliberate that the prosecutions were brought. It is stated that in many instances the adulteration is the "result of either carelessness, accident or other unintentional causes." In the majority of the samples of glycerin examined arsenic was found, but the fact that a considerable number of samples were free from this dangerous impurity is sufficient to disprove the claim that glycerin cannot be made arsenic free.

In the report of the State Board of Health for 1901, page 478, it is stated that during the year, 958 samples of drugs were examined, of which 490, or 51.35 per cent., were reported as adulterated. Some of the important items in this line of adulterated drugs are: Of glycerin, 147 samples were examined and 47 per cent. found to be adulterated ; borax, 169 samples were examined and 60.4 per cent. found to be adulterated ; tincture of iodine, 134 samples were examined and 91.8 per cent. found to be adulterated ; tincture of opium, 11 samples were examined and of this number 10 were adulterated. These are statistics sufficient to show that even in Massachusetts, where dealers recognize that the statutes against drug adulteration are likely to be enforced, the extent of the adulteration is still great.

The officials of the State of Connecticut, in 1900, made a careful study of the cream of tartars sold in that State, and give a summary of the result obtained, on pages 180 and following, of the Report of the Connecticut Agricultural Experiment Station for

the year ending October 31, 1900. In that year 48 samples of cream of tartar were examined, of which 15, or 31.2 per cent., were found to be adulterated. At a subsequent examination of the same drug 28 samples were analyzed, of which 9 were found to be adulterated, or 32.2 per cent. From these data it may be safely inferred that at least one-third of the samples of cream of tartar offered for sale in Connecticut are adulterated.

Cordials, which are so frequently administered as drugs, are also subject to extensive adulterations. Most of these adulterations consist in artificial colors which are added thereto. Eleven samples of crème de menthe, five samples of crème de violette, five samples of crème de rose, two samples of crème de cacao, two samples of ratafia de cerises, one sample of curacao and one sample of absinthe were examined by the officials of the State of Connecticut, and their composition reported on pages 144 and following of the Report of the Connecticut Agricultural Experiment Station for the year ending October 31, 1901.

Of these all except five contained artificial colors. Malachite green was found in all the green colored cordials, methyl violet in those of a violet color, and tropeolin in those of a yellow tint. In some cases glucose was present instead of cane sugar. Vanilla extracts were also found to be extensively adulterated. In 62 samples only 15 were found to be genuine; 37 of the whole number were found to be adulterated with coumarin.

#### PRACTICES OF THE COURTS.

There are few decisions of cases of drugs under the administration of the laws of the United States which are available. The English Foods and Drugs Act, which is the basis of the most of our State legislation, has, however, afforded opportunities for a great many judicial decisions, many of which have been published and are available. For instance, it has been decided in the English courts (*Parker vs. Alder*, 1899) that when a drug is to be delivered at a distance, say by rail, it is no defense to prove that it left the seller's premises in a pure and unadulterated condition if on reaching its destination it is found to be adulterated. The official definition of a drug in the English law is as follows: "The term 'drug' shall include medicine for internal or external use." This to me seems to be a comprehensive and perfectly definite statement.



In regard to the standards of drugs, the English courts have decided (*White vs. Bywater*, 1887) that where a particular drug is asked for, the standard prescribed by the British Pharmacopoeia shall determine whether it is deficient or not.

In general, it may be said that in the execution of the English law it is not necessary for the Government to prove an intent to fraud, but it is incumbent on the defendant to show that there is no such intent. In *Spiers & Pond vs. Bennett*, 1896, it was decided: "It is not necessary to show guilty intent on the part of the seller, for this section has been held to apply irrespective of the intention with which the alteration is made. For instance, a person selling milk by retail in such manner that late customers get milk deficient in quality was held to be guilty of an offense. The servant of C, a dairyman, being short in his supply of milk, bought two gallons of another dairyman and mixed it with his own. It was found on analysis to be deficient in quality. Held that it was no defense for C to show that neither he nor his servant knew or had reason to suspect that the milk was deficient. (*Dyke vs. Gower*, 1892.)"

#### LEGISLATION IN REGARD TO DRUG ADULTERATION.

The only national legislation now in force in regard to drug adulteration is that part of the laws which relates to the inspection of drugs at ports of entry and the law authorizing the Secretary of Agriculture to study the subject of drug adulterations. The object of the former law is not so much to determine the adulterations as it is to reach a proper classification of the articles for dutiable purposes.

By an Act of Congress, approved June 30, 1902, the Secretary of Agriculture was authorized to investigate the adulteration of drugs in the United States. The basis of this act was the fact that a large number of drugs of common utility are the products of the farm, garden and forest. Since all these interests are confided to the Agricultural Department, the establishment of a laboratory for the study of drugs and their adulterations is not so illogical as some persons would have us believe.

Agricultural industries interested in the production of drugs are seriously threatened by the practice of drug adulteration whereby cheaper and inferior articles are sold in the trade in place of the pure and superior articles, thus diminishing legiti-

mate profits of those engaged in cultivating drug-yielding plants. This action of Congress has met with the earnest approval of the American Pharmaceutical Association, as is shown by the following resolutions adopted at the Philadelphia meeting, September, 1902 :

“WHEREAS, We have learned that under authority of an act of Congress the Secretary of Agriculture has established a laboratory in the Bureau of Chemistry to study the composition and adulteration of drugs : therefore

“*Resolved*, (1) That the American Pharmaceutical Association offer to the Secretary of Agriculture its most cordial collaboration in this work, which promises so much benefit to the manufacturers and dealers in drugs as well as to the consumers thereof.

“(2) That this association will use its influence with the Congress of the United States to secure any reasonable appropriations to properly carry on this work in a systematic and effective manner.

“(3) That the president and secretary of the association be authorized to convey to the Secretary of Agriculture a minute of these proceedings and to represent the association before the Committee on Agriculture of the House and the Committee on Agriculture and Forestry of the Senate, when the next agricultural appropriation bill is under consideration.

“(Signed) E. L. Patch, Boston, Mass., chairman ; Eustace H. Gane, New York ; A. B. Lyons, Detroit ; Wm. K. Ilhardt, St. Louis ; Henry Kraemer, Philadelphia.”

Under this act steps have been taken by the Secretary of Agriculture to establish a drug laboratory in order that the purposes of Congress in making the act might be carried out. Unfortunately, the Congress of the United States, as has often been the case, while perfectly willing to pass a law, has an annoying way of forgetting to appropriate funds to carry it into execution. This happened at the time of passing the law authorizing the establishment of a drug laboratory. The result of this has been that up to the present time no funds have been available to equip a drug laboratory, and hence it has not been put into operation. After a thorough examination, however, a competent chemist has been selected as chief of this laboratory, and he expects to enter upon his duties on the first of March, utilizing the other laboratories of the bureau temporarily for his investigations.

When this laboratory is fully established, it is our purpose to undertake the same kind of systematic examination of drugs and

their adulterations as we have pursued in connection with foods for the past twenty years.

One particular result which will undoubtedly come from the establishment of this laboratory will be the establishment of uniform methods of drug assay, following the lines which have been established by the Association of Official Agricultural Chemists in regard to methods of agricultural analysis. At the present time there is a woeful lack of uniformity among pharmaceutical chemists in conducting their operations. Inasmuch as this laboratory is established in the Department of Agriculture it will be possible to have the Association of Official Agricultural Chemists take up this subject of unification of methods in the same comprehensive way in which they have handled the methods of agricultural analysis. This will mean the appointment of a referee on the part of the association to take charge of the work and the securing of the collaboration of pharmaceutical chemists throughout the country towards one common purpose. There is every reason to believe that out of this collaborative work and investigation there will come, in due time, results which will greatly simplify the present methods and unify the efforts of the pharmacists throughout the country in their examination of drug products, and bring into the whole science of pharmaceutical chemistry an element of crystallization and unification which will prove extremely helpful.

Many of the States have laws relating to drug adulteration and the purity of drugs, and these laws are typified in the bill now pending in the Senate of the United States known as the Pure Food and Drug Bill. This bill defines drug and drug adulteration, and establishes principles for the guidance of scientific and legal experts in the matter. These definitions and a description of adulteration and misbranding in the bill, follow:

“That the term ‘drug,’ as used in this Act shall include all medicines and preparations recognized in the United States Pharmacopoeia for internal and external use.

“That for the purposes of this Act an article shall be deemed to be adulterated—

“First. If, when a drug is sold under or by a name recognized in the United States Pharmacopoeia, it differs from the standard of strength, quality, or purity as determined by the test laid down in the United States Pharmacopoeia official at the time of the investigation.



"Second. If its strength or purity fall below the professed standard under which it is sold.

"That such drug shall be deemed to be misbranded—

"First. If it be an imitation of or offered for sale under the name of another article.

"Second. If the package containing it or its label shall bear any statement regarding the ingredients or the substances contained therein, which statement shall be false or misleading in any particular, or if the same is falsely branded as to the State or Territory in which it is manufactured or produced."

The only serious criticism which I have heard upon the above propositions has been applied to the first section and is based on the fact that the Pharmacopoeia does not contain, by any means, all the drugs in common use. It is a work which is not nearly so large as the National Dispensatory and comes out at much longer intervals. A new edition of the United States Dispensatory has been issued, on an average, every four years, while the editions of the Pharmacopoeia appear at dates ten years apart. It was, therefore, suggested by a delegation representing the great manufacturing pharmaceutical industries of the country before the Committee of the Senate having charge of the bill, that the first part of it relating to drugs be amended by inserting after the word "pharmacopoeia" in the first section the words "and all medicines." This would make the definition a very comprehensive one, and the same result may be secured by striking out the words "recognized in the United States Pharmacopoeia," in which case the definition would read: "That the term 'drug' as used in this Act shall include all medicines and preparations for internal and external use." With such an amendment the scope of the law would certainly be broad enough to cover every possible contingency.

I was present at a meeting of the Senate Committee on Manufactures on the 20th of January to listen to the argument of a delegation of manufacturing pharmacists which appeared before that committee to urge the passage of the law above outlined. The argument which they presented was forceful and convincing. They showed the universal practice of adulteration, both by certain manufacturers and also by the dealers. These forms of adulteration press with unusual severity upon those manufacturers who strive to make preparations which correspond in every respect with the requirements of the pharmacopoeia. The sophisticated

articles can be sold at a profit at a much lower rate than the pure articles which must come into competition with them. The result of all this is the general tendency towards lowering the quality of drugs or of substituting cheaper and sometimes more dangerous drugs for those which are demanded. It was shown in this testimony that it was even the practice of druggists themselves, when a prescription came in calling for an article which they did not have, to substitute something which they consider equally as good. It further appeared that when a manufacturing firm had established a reputation for any given product and had secured a trade therefor, it was a common custom for competing firms to send their traveling salesmen to the druggist with an offer of the alleged same material at a very much reduced price. The goods, however, are not as they are represented to be, but some cheap imitation of the original.

The committee above referred to consisted of Mr. Charles R. Parmele, a manufacturing chemist of New York City, Dr. Frank P. Foster, the author of *Foster's Encyclopaedic Medical Dictionary* and editor *New York Medical Journal*; Prof. Smith Ely Jelliffe, Professor in the College of Pharmacy, New York City, also editor of *Medical News*; Mr. William J. Evans, representing McKesson and Robbins, drug manufacturers and wholesale druggists; Edward G. Wells, representing the M. J. Breitenbach Company and the C. N. Crittenton Company; Edward M. Johnson, representing the American Ferment Company, and Samuel Owen, representing Kress and Owen Manufacturing Company. The committee also represented, by written authority, the Sultan Drug Co. and Peacock Chemical Co., of St. Louis, Mo.

Mr. Parmele was the spokesman for the committee, and Hon. P. J. McCumber, Chairman of the Senate Committee, asked among others the following question :

“ Now, can you, from your knowledge, give us an idea of the extent of substitutions and misbrandings and adulterations ?

“ Mr. Parmele : ‘ If I should state exactly what I think regarding the percentage of substitutions as compared with the genuine article dispensed, I am afraid that the retail drug trade of the United States might get a very queer impression of my opinion of their honesty. There are, of course, lots of honest druggists and lots of dishonest druggists. The opportunity for them to practice deception is so great and the chance of discovery,

in so many instances, so small that it enables them to practice dishonest acts.

“The situation is one of confidence. Your doctor writes a prescription. You do not even know what you are expected to get in many instances. The prescription goes to the drug store. The druggist puts in that prescription, or should, what the doctor has ordered exactly—nothing more, absolutely nothing less. But the temptation to the druggist to make the most out of that prescription that he can will induce him to use an article that is below the standard. Or, if it be some article that is made by a special manufacturer, the temptation is for him to put in something that will pass muster, but is not the real article.

“I will illustrate. You do not want any advertising in this, so I will give a broad-gauged illustration.

“A man introduces a new form of iron preparation—a liquid. It is tested in the hospitals. The doctors find out what it will and what it will not do. There are certain particular conditions of disease in which it just fits; will benefit the patient; is not a tax upon his organization in the condition in which he then is. It costs money for that introduction; it costs time and it costs materials.

“A druggist down at the corner will get a prescription; the first time it comes he does not know what it is. He buys a bottle of the article from his wholesale dealer—only gets one-twelfth of a dozen. Next day he gets another prescription; he gets another one-twelfth of a dozen. Next day two prescriptions come in, and he gets one-fourth of a dozen. The sale goes on, and he begins to watch. In comes a salesman for some large manufacturing drug house, which derives a very large part of its business from watching the successful introductions of drugs. The salesman sees this druggist unpacking some goods that have just come in. He says, “Hello, do you use much of that? We can put up a preparation for you by the demijohn, and it will cost you 20 per cent. less than that.” Now, that retail druggist is conducting a business which is necessarily along narrow lines. He is only too glad to make an additional profit, and you do not have to argue very hard with that fellow to get him to handle something that will take the place of that which is prescribed and which costs him more money than he would pay for that which the salesman offers. The salesmen will say, “Well, what the doctor wants is such and such an iron preparation. This is the same thing exactly.” The druggist yields to the temptation, buys the cheap imitation, and that is what you get in the prescription written by the physician you trust, to be given to some member of your family that may be a little bit sick or perhaps just at the point of death. It is not always that that preparation is deleterious and would kill the patient *per se*, but, because of the absence of something in that preparation, which the doctor intended the patient to



get, the patient has missed that medication and disastrous results follow.'''

This excerpt from the testimony, which is published as Senate Document No. —, is typical of the evidence advanced, and shows the extreme necessity of early congressional action on this legislation.

It appears from the foregoing that unless some rigid system of inspection be devised, both State and national, to secure uniformity in the composition of drugs and conformity to established standards, there will always be a probability in filling the prescriptions of a physician, of variation in the strength and purity intended to be used. The effect of this variation may prove of grave consequence, and especially in the cases of the so-called heroic remedies, that is, those which in themselves are deadly poisons. It is evident that in these cases the variation may be above the required standard as well as below, and, by reason of the absence of some higher quality or substance prescribed by the physician, a corresponding quantity of a more poisonous substance may be substituted. Aside, however, from the immediate danger to life which may arise from such variations of strength and purity must be considered as far more serious the therapeutic disturbances which may ensue. If the skill and science of the pharmacist and the experience of the physician are worth anything, the combination of remedial agents commonly found in the prescription is adapted to the particular phase of the patient's condition which may obtain at the time. It is evident, therefore, that any variation from the prescribed strength and purity of the remedies may cause an entire failure in the therapeutic action of the exhibited drug.

There is absolutely no excuse for the pharmacist to substitute cheaper or inferior articles for those called for. The profits on prescriptions are sufficiently large to permit of the free use of the higher-priced ingredients. For the sake of saving a few cents, which is all that could be saved in any ordinary prescription, the violation of the principles of ethics, morality and honesty finds no excuse whatever, even from a mercenary point of view. It is evident that the whole practice of pharmacy, both from scientific and commercial standpoints, will be elevated to a high plane of business morality just as soon as municipal, State and national control are thoroughly established. I have no excuse to offer for

the retail druggist who substitutes cheaper and inferior articles for those called for in prescriptions. The punishment of such a violation of all the principles of honesty and duty to the public cannot be made too severe. The retail druggist, however, who dispenses from original packages the remedies called for by the physicians, ought not to be held too strictly responsible for the character of the goods he deals in. It is in this respect that the national law comes to his aid, for this proposed law provides that the retail dealer, who can show a written guarantee of purity from the manufacturer, wholesaler or jobber, will be guiltless if this guarantee is sufficient to secure conviction of the offending party. It is only when the guarantee can be proven, that is, in the sense of securing conviction of the manufacturer or dealer, that the retailer is excused. Thus the national law will supplement the laws of the various States, and enable the Federal courts to go outside of the State where the actual offense of selling for consumption the adulterated and misbranded drug is committed, to the very fountain and source of adulteration.

Good national and State laws, which are formulated on the same general principles, will not require numerous and annoying prosecutions for their enforcement, because an immense majority of all the manufacturers, dealers, jobbers and retailers are honest and anxious to do the right. A few convictions of the dishonest and fraudulent manufacturers and dealers would serve to entirely paralyze their business so that in such a system of legislation the laws would, after a time, practically enforce themselves, a sufficient inspection being maintained to see that any attempts to violate the laws are promptly detected and punished. In other words, it is not that law which secures the greatest number of prosecutions, but that law which brings into order and obedience the elements, which, if left in their active state, would transgress its provisions, that is the best. While it is true that persons who are informed in regard to the conditions which exist in the drug trade are earnestly seeking to correct them, it is unfortunate that the great mass of our people, who are unacquainted with the facts of the case, are practically indifferent. It is, therefore, difficult to arouse public opinion of sufficient strength to control and to compel legislation.

The members of our law-making bodies are for the most part not specialists. There are very few scientific men among them,

and only a few physicians. They are mostly lawyers or business men. I believe they represent the high intelligence and patriotism of our people. I have no sympathy with the common sentiment which frequently refers to our law makers as men who are unable to earn a living in any other profession. I have known some of them intimately for twenty years. I speak from my actual knowledge of their great intelligence, their broad views and their dignified patriotism. It is only necessary that they should feel that the people are back of the movement to secure purity in drugs to lead them to enact such laws as will secure what the people want. Political measures easily obtain the right of way in Congress. Questions pertaining to the admission of new States, to treaties with foreign countries, to regulations of the trusts, to modifications of the tariff, easily command the public ear and absorb the time and talent of the members of Congress. It is hard to get the right of way for legislation affecting the general welfare of the people unconnected with some general political principle. This is why national legislation to control interstate commerce of adulterated and misbranded drugs was not secured long ago. I believe, however, that the public demand for such legislation is growing. The very fact that this body has asked for this paper shows the feeling which exists among the professional part of the community. This feeling will be shared more and more by the laity.

We have learned in all of these matters to be patient, and not to be discouraged because immediate results are not secured. If the present Congress (now so nearly through) fails to pass the law, it is to be hoped that the friends of purity of drugs will not cease watching and working, that the matter may be brought before the next Congress and still the next Congress until the requirements of honesty and morality are met and the demands of the people satisfied.

**Dr. A. F. A. King** said that his only regret was that Dr. Wiley had stopped speaking: Dr. King could have listened to him for another hour. Gautier had shown that arsenic existed in the human body as a proximate principle, just as did iodine. One explanation of its presence was that arsenic existed so widely in fabrics, wall paper, foods and drinks, etc., that it was impossible for civilized man to avoid having some of it in his system. Adulteration was as old as history, and whether the authorities could stop it was a question. Nevertheless, the work of the Govern-



ment, under the supervision of Dr. Wiley was certainly to be commended. He moved that a vote of thanks be extended to Dr. Wiley for his able and instructive address. [The motion was unanimously carried.] Dr. King asked whether any particular color of wall paper was worse than others as to the quantity of arsenic it contained.

**Dr. Wiley** replied that there was no particular difference in this regard. He said that *black* stockings contained more than others.

**Dr. Kober** asked whether the pigments used in coloring bank notes contained arsenic. He asked this question because one of the worst cases of arsenical poisoning he ever saw was in a young lady who was engaged in handling greenbacks which had just been struck off. He hoped that the Government had discarded the use of arsenical pigments. He also inquired whether arsine was the active volatile constituent referred to as producing the growth of organisms in wall paper. He had always been under the impression that the toxic effects were due to arseniuretted hydrogen, given off by the wall papers.

**Dr. Wiley** replied that in work for the Government the specifications now excluded the use of pigments containing arsenic. He could not answer the second question. The arsenic did harm only when taken into the system for weeks or months; it appeared to have a cumulative effect. In answer to Dr. King, he said that there was no doubt that there was arsenic in the system; the question was whether its presence was normal or abnormal. It was probably abnormal and due to the almost universal distribution of the poison. Much could be accomplished by preventing its entrance into the body.

**Dr. Kober** wished that he had prepared data as to the adulteration of drugs. Several years ago he was a member of the Commission appointed to investigate the cause and extent of drug habits in this District. The Commission found that the opium and other drug habits were, in many instances, acquired by the innocent use of apparently harmless proprietary medicines which, however, contained drugs which enslave. The formulae of many patented and proprietary medicines were examined. A patent medicine was one whose formula and method of manufacture were at least disclosed to the Patent Office; a proprietary medicine was one whose formula was not even known to the Patent Office. Hence the importance of enacting laws to oblige manufacturers of poisonous drugs to publish upon the label the fact that the mixtures contained poison. We can learn much in this regard from other countries, even from Japan. England and America were far behind in the governmental regulation of patent and proprietary medicines. Many other Governments required the publication of the formula on the label. In Japan, mixtures containing poisonous ingredients could not be sold in the open market.

The public was entitled to know the composition of remedies

which it bought. These medicines were increasing at the rate of 250 per year. Their effects were far-reaching and dangerous, notwithstanding the fact that some were believed to be harmless remedies.

Referring to arsenic in wall paper, Dr. Kober said that we all understood how the inhalation of arseniuretted hydrogen was liable, in time, to produce constitutional effects. In the case which he had already mentioned, an exceedingly severe peripheral neuritis was produced by the handling of freshly-printed green-backs. The aniline dyes also were capable of producing severe local and constitutional effects, *e. g.*, the black dye sometimes used in coloring stockings and the inner lining of shoes. He was glad that the Government was taking steps to protect the public against these dangers.

**Dr. Reisinger** heartily agreed with all that had been said, particularly as to the publication of formulae. He had recently met with two severe cases of poisoning, one from opium contained in a cough mixture and the other from chloral. We should blame ourselves also for the continuance of the evil: hardly one of us had not used the proprietary medicines left by salesmen. By not looking into these matters we unconsciously harmed both our patients and ourselves. A physician who used these mixtures practically admitted that he was unable to write his own prescriptions and must use those formulated by others.

**Dr. Butler** said that the label also should bear the common names of the ingredients. This was impressed on him by a patient who contracted the cocaine habit from the use of a remedy which contained "Extract of Erythroxyton Coca."

**Dr. F. P. Morgan** said, with reference to cocaine, that he was recently standing near a group of men, one of whom took from his pocket a small box which contained a brownish powder like snuff, and after taking some himself, passed it around to the others with the remark that it was a "great powder for opening up the nose in colds or catarrh." It was unlikely that any of them knew that the snuff contained cocaine as an active ingredient: if they had they would, in all probability, have had very little to do with it. Yet, from the mere fact that the composition of the "medicine" was not published, all were subjected to the danger of contracting the cocaine habit. This was only one illustration of the many ways in which individuals could contract drug habits through failure of the manufacturer to place the formula of the preparation on the label. It was the duty of the Government to protect the public from the indiscriminate sale of drugs like those mentioned, and the sale of medicinal preparations of unknown composition.

In considering this subject there was one class of remedies which was entirely overlooked, the coal-tar analgesics. It was not generally known that a habit existed in connection with

acetanilid, antipyrin and phenacetin, which was as subtle in its inception, as hard to break away from, and as baneful in its effects as was the opium habit. This had been impressed on him first by the case of a young lady who was addicted to the habitual use of acetanilid, in the form of "migraine tablets." She contracted the habit innocently several years ago, and she seemed now to be entirely unable to get away from it. Its effects were such that she was confined to her room, and mostly to her bed, on an average of six months every year. Each attempt to break up the habit had only temporarily succeeded. Several similar cases had been reported.

**Dr. Jung** spoke concerning the inferior quality of some of the drugs and preparations found in the market. Even a good drug when enclosed in an insoluble capsule could do no good. Hence some of his patients asked for pills rather than gelatin capsules. In an experiment which he tried, a gelatin capsule did not dissolve in dilute hydrochloric acid in five hours: on inquiry of the pharmacist he learned that manufacturers were obliged to "harden" capsules which were to be used in the South. Hence, capsules might be useful in some parts of the country, but they could not be used to advantage everywhere. Age hardened pills also, they passed through the alimentary tract unchanged, even though the digestion was not impaired.

In Austria, Germany, France and Russia, the materia medica supply was controlled as follows:

1. Wholesalers and retailers were obliged to conform to fixed and definite standards which were set forth in the pharmacopoeias.
2. Each pharmacy was inspected by government agents at least once a year, and at any time during the year. The pharmacist, not knowing when the inspector was coming, must at all times keep his stock up to the required standard.

It was remarkable that the cost of drugs was higher here than in these countries, where the druggist was obliged to keep his stock absolutely fresh all the time. The smuggled phenacetin which came into the United States through Canada was wrapped in a yellow box; the real article came in a violet-gray box.

**Dr. A. F. A. King** thought that publication of the formula would do little good unless there was some way to make sure that the package actually contained the ingredients stated on the label. Speaking about insoluble coatings for pills, several years ago an agent left him some quinine pills alleged to be quite soluble which did not dissolve in water in three weeks.

**Dr. Wiley**, in closing, thanked the Society for the attention it had given him, and expressed his appreciation of the vote of thanks.



SOME STUDIES IN CONNECTION WITH THE  
VIRULENCE OF TUBERCLE BACILLI.\*

BY E. A. DE SCHWEINITZ, M. D., PH. D.,

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As Dr. Salmon will review the work of many investigators with regard to the difference in virulence of tubercle bacilli obtained from various sources, I have thought that perhaps a report of some of our experiments in the study of tuberculosis might be of interest to the members of the Society.

Already in 1890, Dr. Trudeau, of Saranac Lake, N. Y., called attention to the difference in virulence of the tubercle bacilli obtained from man. While in their morphological and biochemic reactions these germs appeared to be the same, when their virulence was tested by direct inoculation upon experimental animals, the bacilli obtained from an acute case required much less time to produce the disease than those from a chronic case. Many similar observations have been made during past years, especially noteworthy being those of Lartigau, all of which have shown that the virulence of tubercle bacilli, just as the virulence of bacilli of other diseases, is greatly influenced by the conditions under which the germs develop, whether within the animal body in the various organs and glands in which tubercle bacilli are usually located, or whether outside the animal body upon artificial culture media such as are used in laboratories for studying the tubercle bacilli.

The most important practical consideration is whether or not tubercle bacilli from various animals, especially cattle, will produce tuberculosis in man. While investigations along this line have been in progress for some years, the statement in Koch's paper, read in London, and which is thoroughly familiar to all of you, has stimulated this work and the publication of the results. His conclusions, drawn, as it appears to me, from an incomplete examination of available data, were, as you know, to the effect that tubercle bacilli obtained from cattle were non-virulent for man. These statements were subsequently modified to some extent, so that he is said to hold that while bovine tubercle bacilli may occa-

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sionally be dangerous for man, this danger is small and of no practical importance. The only absolutely positive method of determining whether or not tubercle bacilli derived from cattle will produce tuberculosis in men would be to make some direct inoculation experiments. There are many cases on record in which either accidental or, in some instances, intentional subcutaneous inoculations of human beings with tuberculous material from cattle have been made, and also a number of cases in which the disease has apparently been contracted, especially by children, by the use of milk from tuberculous animals. The claim, however, is always made in all these cases that other avenues of entrance and infection were not excluded. Perhaps this is sometimes true. In other cases, on the contrary, the positive evidence appears to be almost as strong as that which we have to show that mosquitoes are carriers of the infective parasites of malaria and yellow fever. The claim which has further been made, that tubercle bacilli of human origin would not infect cattle, also does not seem to be sustained by evidence. It has been possible, and comparatively easy, to make many positive experiments which show that bacilli from human sputum, from mesenteric glands in cases of intestinal tuberculosis and from other tuberculous organs, will, upon subcutaneous and intravenous inoculation, produce tuberculosis in cattle, just as generalized as that produced by tubercle bacilli of bovine origin. Of the experiments upon cattle which we have made I will select three. We have succeeded in producing tuberculosis in a calf by inoculating the animal intraperitoneally with tuberculous sputum obtained from an advanced case of tuberculosis at the Washington Asylum Hospital. The person from whom this material was obtained died a few months afterward. The peritoneum of the calf, when killed, was covered with tubercles and these tubercles contained many tubercle bacilli virulent for experimental animals.

From the mesenteric glands of two children, dead from generalized tuberculosis, we obtained material at the autopsies, through the courtesy of the physicians in charge of the Children's Hospital, from which Dr. Dorset, in my laboratory, has isolated several very interesting cultures. The large animals were at the station of the Bureau and the recorded autopsies were made by Dr. Schroeder. Both these cultures produced, upon subcutaneous inoculation of calves, very generalized tuberculosis. The disease

was just as generalized as that in a check-animal inoculated with tubercle bacilli of bovine origin, thus proving positively and beyond a question of doubt, that tubercle bacilli may be obtained from man which will produce generalized tuberculosis in cattle. [The drawings show the appearance of the organs of the animals that had bovine and human tuberculosis.] The reverse experiment of the infectiousness of bovine tubercle bacilli for man we have tested indirectly by some experiments upon monkeys. A subcutaneous injection of these animals with bovine tubercle bacilli and also with human tubercle bacilli showed that both germs produced very generalized tuberculosis in a short time. The rapidity of the disease and extent of the lesions caused by the bovine bacilli were greater than those caused by human bacilli. Further, we have fed a baboon upon milk obtained from a cow that had a tuberculous udder, and after some months this baboon died from very generalized tuberculosis. There were no intestinal tubercular ulcers, it is true, but a badly tuberculous pancreas. As all precautions were used to prevent the possibility of any other avenue of infection, the monkey, in this case, contracted the disease undoubtedly from tuberculous milk. [The drawings which I pass around show the appearance of a monkey inoculated with the human germ, another with the bovine germ, the third fed upon tuberculous milk. I have, further, some drawings which show the effect of inoculating calves and pigs with human and bovine tuberculosis.]

Another point which it seems to me has been overlooked very generally in connection with the discussion of the intercommunicability of bovine and human tuberculosis, is that it has been possible, not only in small experimental animals, but also in cattle, to produce by vaccinating with the human germ immunity to a subcutaneous inoculation of tuberculous material of bovine origin. The first positive experiments ever reported in this line of work where these two materials had been used were published by ourselves in December, 1894, in the *Medical News*. Subsequently, in 1894-5-6-7-8, we noted the fact that large doses of the attenuated human culture were not virulent for various species of animals, and our further experiments in inoculating these animals, some of which had received as large doses as 20,000 c.c. of attenuated tubercle culture, showed that they were immune to inoculation with virulent bovine tuberculosis. Although these latter



experiments were completed in 1896-7-8, the final results of the test inoculations were not reported at the time. Some animals so immunized served to supply the serum with which from time to time we have experimented in connection with tuberculosis. It is well known that a preventive inoculation from one disease does not protect from another disease, and it is certainly fair to conclude that if attenuated human bacilli can produce immunity against virulent bovine bacilli there must most assuredly be a very intimate and close relationship between these germs from different animals.

Another claim often made is that if there are no primary intestinal tubercular lesions it is proof that the infection cannot have obtained access to the system by way of the digestive tract. This position, it seems to me, is untenable, and I do not think any modern anatomist, physiologist or pathologist would deny the possibility of pathogenic organisms obtaining access to the circulation by way of the digestive tract without the production of local lesions at the point of entrance.

It is well known that tubercle bacilli obtained from cattle are, as a rule, more virulent for all species of animals than those obtained from man. It is true, further, that under proper hygienic conditions, man shows a great deal of resistance, and in some cases is immune to tuberculosis. The most natural conclusion, it seems to me, therefore, is that in the bovine bacilli we have the parent virulent organism, while in the various bacilli obtained from the human and also from some other animals, we simply have races of tubercle bacilli which show slight variations from the parent, one of these variations being a lessened virulence. We know what an enormous influence the variations in soil and climate have upon various species of plants, and how easily certain characteristics can be developed and cultivated. We must not forget that in the tubercle bacillus we have simply a cell which can be readily influenced in its properties. Just what particular factor it is in the development of the tubercle bacilli which causes one to be virulent and the other not, is a matter which our present knowledge does not enable us to state. Some analyses of virulent and attenuated human bacilli, those from the bovine, horse, bird and dog, have led me to think that the difference in virulence might be due very largely to the fact that the bovine bacilli produce, in proportion, very much larger amounts of a

poisonous proteid than the attenuated human bacilli, or the attenuated human bacilli develop such a thick cell wall of fat as compared with the virulent bovine bacilli, that the poisonous principle formed by the germ, that principle to which its virulence is due, cannot obtain such a ready access to the system. Our work shows that the differences in tubercle bacilli can be well explained by environment.

#### RECORD OF HEIFER CALF NO. 286.

October 13, 1902. A small animal in fairly good condition. Injected subcutaneously in right side of neck directly in front of shoulder, 5 c.c. of *human* tubercle culture marked "Culture C, No. 4."

23d. Had an enlargement at seat of injection, about 3 inches by 3 inches in area by 1 inch in height; the prescapular gland beneath it was much enlarged.

27th. Had a hard tumor, about 2 inches by 3 inches in area by 1½ inches high, at seat of injection; the prescapular gland was enlarged. The animal was losing in condition and did not seem to be well.

28th. Was very hollow in flanks, appetite very poor, seemed to be quite sick, but respiration about normal.

29th. Seemed to be very sick, scouring, and eating scarcely anything.

31st. Same as last noted.

Nov. 3. Very thin and weak.

5th. Had a hard tumor, about 3 by 4 inches area and 1½ high, at seat of injection; the lymph gland immediately beneath was about 3 by 4 inches in area and 2 high. Animal growing thinner and weaker daily, and ate scarcely anything. Respiration normal.

8th. Still quite sick and very thin and weak. Respiration normal.

11th. Very thin and weak, walked with a staggering gait, and ate scarcely anything.

12th. So weak that it could hardly walk.

14th. Unable to get up without assistance, and stood unsupported but for a few minutes; refused food; extremely emaciated; respiration labored and accelerated, but previous to late yesterday was about normal. At seat of injection was a hard tumor, about 2½ by 4 inches in area and 1 inch in height; firmly attached to the prescapular gland, which was about 2½ by 2 inches in size. Animal in a dying condition and was slaughtered.

*Autopsy.*—The animal was extremely emaciated. Axillary gland on side of injection, normal. Flank gland on same side, normal. Lungs.—The entire lung, with the exception of the dorsal portion of the principal lobe, intensely reddened and sprinkled

throughout with minute tubercles. Liver, normal in color and sprinkled with numerous small necrotic areas, probably tubercular, varying in size from mere points to  $\frac{1}{8}$  inch. At seat of injection the skin was indurated over an area about four inches square. Under this induration the gland in front of shoulder was enlarged to 4 by 3 inches in size. Sprinkled over the omentum were a number of small, pearl-gray nodules with red centers, probably tubercles.

The temperature table of calf No. 286 was as follows :

	A. M.	P. M.		A. M.	P. M.
Oct. 14,	103.0	102.4	Oct. 30,	102.4	103.8
Oct. 15,	101.6	101.6	Oct. 31,	103.0	105.4
Oct. 16,	102.8	102.4	Nov. 1,	103.4	104.0
Oct. 17,	101.6	103.0	Nov. 2,	102.8	104.0
Oct. 18,	102.8	103.0	Nov. 3,	102.8	105.6
Oct. 19,	103.2	103.4	Nov. 4,	102.8	104.0
Oct. 20,	103.2	104.2	Nov. 5,	103.0	104.4
Oct. 21,	102.4	105.0	Nov. 6,	104.0	105.6
Oct. 22,	104.0	105.6	Nov. 7,	104.0	104.8
Oct. 23,	105.0	105.4	Nov. 8,	102.2	103.2
Oct. 24,	105.4	105.4	Nov. 9,	103.0	104.2
Oct. 25,	104.8	106.0	Nov. 10,	102.6	103.2
Oct. 26,	105.6	105.8	Nov. 11,	103.0	102.0
Oct. 27,	105.4	105.4	Nov. 12,	102.6	104.4
Oct. 28,	104.0	104.0	Nov. 13,	102.4	103.0
Oct. 29,	103.2	104.4	Nov. 14,	101.0	...

Steer No. 242 was drenched with *bovine* tubercular material January 10, 11, 13 and 21, 1902. February 17, 18 and 26 of the same year, was tested with tuberculin; a positive reaction was given. October 6, about nine months after the first drenching, this animal was killed. A few small tubercular foci were found in the mediastinal glands and in the lymph glands at the entrance of thorax; otherwise no evidence of tuberculosis.

November 2, 1901, Bull No. 223 was inoculated subcutaneously with 10 c.c. of *bovine* culture III (Smith). January 21, 1902, and April 18, reactions after tuberculin injection were noted. October 2, when the animal was killed, its general condition was excellent. At seat of inoculation was a patch of induration about six inches in diameter, in which were small abscesses containing a soft, cheesy material. The shoulder glands, both deep and superficial, on the side of infection, were enlarged and sprinkled with necrotic foci. The mediastinal glands contained numerous necrotic foci. No other lesions of any kind were present.

This animal showed, therefore, very much less tuberculosis than that found after six weeks in a calf which received subcutaneously injections of material from tuberculous cultures isolated from children. Compared with the record of Heifer No. 284,



which had been inoculated with a virulent bovine culture isolated from a spontaneous case of disease occurring at the station which showed generalized tuberculosis in eight weeks, it is evident that the bovine germ by cultivation loses in virulence and in ability to produce the disease just as well as the human bacillus. This is another fact which emphasizes the relation of environment to the virulence of tubercle as well as other bacilli.

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## HUMAN AND ANIMAL TUBERCULOSIS.\*

By D. E. SALMON, D. V. M.,

Washington, D. C.

There is today no more interesting question confronting the sanitarian than that which relates to the proper methods of limiting the dissemination of the bacillus of tuberculosis and of reducing the mortality of this disease. We seem to have most of the elements of this problem within our grasp; the most common form of the disease has been notably diminished during recent years in parts of our own country and in some other countries. There probably has never been a time when so much zeal has been shown to accomplish this object as is now apparent. Not only are the trained sanitarians working as they have never worked before, but associations are being formed, composed largely of individuals whose interest in sanitary matters is confined to this one disease, and who are now coöperating with sanitarians for the single purpose of reducing its ravages.

With this campaign in progress, and with these auxiliary forces now cheerfully aiding in the struggle, how important it is that we should have a clear understanding of the nature of the foe and of the ground over which the fight is to be made. To neglect this in any respect would be an error which may be compared to that of a general who goes into a battle with an imperfect knowledge of the ground over which he intends to assault the enemy.

It seems unfortunate that at a time when such a campaign is in progress, and when the lines of action have apparently been clearly established, a man whose authority is great, because of the good work which he has done and because of his official position, should arise and tell us that we are mistaken in regard to some

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things which have been accepted as established, and that to continue our work in certain directions is to waste our efforts. This unexpected division in the ranks of the investigators and sanitarians has had a more or less demoralizing effect upon the medical profession, and has led our lay auxiliaries to wonder if, after all, we really have a very clear idea of the problem which we are trying to solve. But, as the division has come, it is best that the question should be reëxamined at once and definitely settled.

#### THE ORIGIN OF HUMAN TUBERCULOSIS.

What is the origin of human tuberculosis? Is it contracted exclusively by contagion from man to man or does the tuberculosis of animals play a certain part in the infection of the human subject? The importance of this question is very great, because if we have outside of the human race a source of the disease, and if each case originating from such a source may become the starting point of a series of cases, it is readily seen that our efforts to control the mortality could only meet with partial success so long as we ignore this source of infection. We might fairly compare the cases of tuberculosis arising from animal sources, admitting for the moment that the disease may originate from such sources, to the limited number of cases of smallpox caused by contagion brought into the United States from foreign countries. Each one of these cases may start an outbreak in a different section of the country, and while the number of cases which are in the end infected directly from American patients is out of all proportion to the number infected by immigrants, the source of the whole trouble is easily seen to have been imported contagion. This is a possibility with tuberculosis, and it is so clear and evident that wise men will not try to escape it, but they will examine the evidence which is brought forward, and be influenced by that evidence rather than by an illogical conclusion of any man, no matter what his position or authority.

What strikes the observer at a first glance of the subject as remarkable is the prevalence and wide distribution of animal tuberculosis among the animals which are the principal source of our food supply. Bovine animals are particularly subject to it, and among bovine animals the ones most affected by it are precisely the ones which may do the most damage, viz: the cows which furnish the milk supply. It is not my purpose to attempt

to discuss, in this paper, the question as to the identity of human and animal tuberculosis. The field is too large, and I prefer to deal with the more practical issue of the transmission of animal tuberculosis to man. What may be said is that there is a close resemblance between the lesions found in bovine and in human tuberculosis, and that the bacilli from the two sources have the same staining reaction and the same general characteristics. The differences are seen in the minor features, and are more or less inconstant.

In the remarkable paper which he read before the British Congress on Tuberculosis, Koch, after referring to his experiments, and to those of other investigators, said: "I feel justified in maintaining that human tuberculosis differs from bovine, and can not be transmitted to cattle." Concerning the transmission of bovine tuberculosis to man, he admits that it is impossible to give this question a direct answer, because the experimental investigation of it with human beings is out of the question. He says, however, "It is well known that the milk and butter consumed in great cities very often contain large quantities of the bacilli of bovine tuberculosis in a living condition," and, if these bacilli "were able to infect human beings, many cases of tuberculosis, caused by the consumption of alimenta containing tubercle bacilli, could not but occur among the inhabitants of great cities, especially the children." He concludes that "In reality, however, it is not so." The only facts which he cites in support of this remarkable conclusion are some selected postmortem statistics which indicate that primary tuberculosis of the intestine is an extremely rare disease. He lays it down as a principle "That a case of tuberculosis has been caused by alimenta can be assumed with certainty only when the intestine suffers first." But he is not willing to admit that all of these cases are caused by bacilli ingested with the food. "It is just as likely," he says, "that they were caused by the widely propagated bacilli of human tuberculosis, which may have got into the digestive canal in some way or others, for instance by swallowing saliva of the mouth." He says we may determine from which source the infection occurred by inoculating cattle with a pure culture of the bacilli found in the tubercular material, and for this purpose he recommends subcutaneous injection, which he says "yields quite specially characteristic and convincing results."



This is, in a nut-shell, the argument which has attracted so much attention the world over, and this presentation of it will, I hope, suggest the reasons which have led me to direct that certain lines of investigation bearing upon the question should be taken up by the Bureau of Animal Industry. Some of the results of these investigations have been presented to you by Dr. de Schweinitz, and in order that you may have a somewhat clearer view of the field as we see it at present, I will briefly review the more material evidence which has been heretofore advanced.

Koch tells us that he had experimented upon nineteen head of cattle by infecting them in various ways with pure cultures of tubercle bacilli taken from cases of human tuberculosis or with sputum from consumptive patients. In some cases the tubercle bacilli or the sputum were injected under the skin, in others into the peritoneal cavity, in others into the jugular vein. Six animals were fed with tubercular sputum almost daily for seven or eight months; four repeatedly inhaled great quantities of the bacilli, distributed in water and scattered in the form of spray. None of these cattle showed any symptoms of the disease, and no trace of tuberculosis was found in their internal organs. The animals were absolutely insusceptible to these bacilli. An almost equally striking distinction between human and bovine tuberculosis was brought to light by feeding swine with tubercular sputum and by injecting tubercle bacilli into the vascular systems of asses, sheep and goats. In all these experiments bovine material was used upon similar animals for comparison.

These experiments would be quite convincing as to the harmlessness of tubercle bacilli from man for these various animals, were it not for the fact that it has been shown there are great variations of virulence in tubercle bacilli from different human subjects. Vagedes, working under Koch's direction, had shown this three years before the paper was read at London, and yet Koch gives no hint of this nor does he admit the least suspicion that there might be different results with different infective material.

Perhaps the most astonishing statement made by Koch in his London paper is found in the following sentence: "If one studies the older literature of the subject, and collates the reports of the numerous experiments that were made in former times by Chauveau, Guenther and Harms, Bollinger, and others, who fed calves, swine and goats with tubercular material, one finds that the

animals that were fed with the milk and pieces of the lungs of tubercular cattle always fell ill of tuberculosis, whereas those that received human material with their food did not."

Now, the fact is Chauveau, in a remarkable series of experiments, did infect cattle with human tubercular material and obtained just as serious results as with bovine material. His conclusion was that the human tubercular virus acts on the bovine species exactly like the tubercular virus which comes from the bovine species itself. Bollinger inoculated a young calf in the peritoneal cavity with material from a human lung. When killed at the end of seven months the mesentery and peritoneal covering of the spleen presented a number of tumors from the size of a pea to that of a walnut, which microscopically were identical with those found in *pearly* diseases under natural conditions. The retroperitoneal and mesenteric glands were tuberculous also. The paper of Guenther and Harms upon this subject, I have not been able to consult, nor have I seen any satisfactory summary of it. At least two out of three of the older experimenters cited by Koch, had therefore obtained positive results by inoculating cattle with human tubercular material.

Koch was equally inexact in his citations concerning his own previous declaration on this subject. He said: "Even in my first circumstantial publication on the etiology of tuberculosis I expressed myself regarding the identity of human tuberculosis and bovine tuberculosis with reserve." What he really said in that paper was this: "Bovine tuberculosis is identical with human tuberculosis, and therefore a disease transmissible to man. \* \* \* However great or small may be the danger which results from the consumption of meat or milk affected with bovine tuberculosis, it is present and must, therefore, be avoided."

In the period which has elapsed since the London Congress, a period of less than two years, a considerable number of investigators have had positive results in the inoculation of cattle with tubercular material from the human subject and with pure cultures of tubercle bacilli from the same source. Among these may be cited de Schweinitz and Ravenel in this country, and Thomasen, de Jong, Delepine, Orth, Stenström, Fibiger and Jensen, Max Wolff, Nocard, Arloing, Behring, Hamilton and Young, and Dean and Todd. Some of these and other investigators have also produced the disease in sheep, goats and swine by infection in various

ways with human tuberculosis. As the animals named were refractory in Koch's experiments, the success of various experimenters with them is quite significant. In the Bureau of Animal Industry I have had two distinct lines of experiments in progress in order that I might check up one against the other. De Schweinitz has given you some of the important results which he has obtained in the Bio-Chemic Division. Mohler has also been working in the Pathological Division, and has obtained three very virulent tubercle bacilli from the human subject. A goat inoculated subcutaneously with a culture of one of these died in 37 days with miliary tuberculosis of the lungs involving the axillary and prescapular glands. This bacillus was obtained from the mesenteric glands of a boy. Of still greater interest is a bacillus isolated by Mohler from human sputum. A goat inoculated subcutaneously with a culture of this germ died in 95 days of pulmonary tuberculosis. A cat inoculated in the same manner died in 23 days of generalized tuberculosis. A rabbit similarly inoculated died in 59 days of pulmonary tuberculosis. A rabbit inoculated with a bovine germ for comparison lived ten days longer than the one inoculated with this sputum germ. Here, then, is a human tubercle bacillus equally virulent for animals with the bovine bacillus.

We must conclude, therefore, that there is a great difference in the virulence of tubercle bacilli from human sources, and that, while some of these are not capable of producing serious disease in cattle, sheep, goats and swine, there are others which produce generalized lesions, and are very fatal with such animals.

Having disposed of the argument that human tuberculosis is not transmissible to animals, let us briefly consider the other proposition, viz : that bovine tuberculosis is not transmissible to man. The proportion of cases in which the primary lesion is in the intestine is a very poor criterion from which to judge the proportion of cases caused by ingestion of the bacilli with the food. With experimental animals in which the disease has been produced by feeding tubercular material we very frequently fail to find any lesions in the intestines, and we find the oldest lesions in the mesenteric glands, the liver, spleen, kidneys, or perhaps in the lungs. Koch tells us that in his experimental swine, fed with the tubercular sputum of consumptive patients, no trace of tuberculosis was found, except here and there little nodules



in the lymphatic glands of the neck, and in one case a few grey nodules in the lungs. With these results before his eyes, how could he consistently claim that we must find primary lesions of the intestine in all cases of ingestion tuberculosis? With pigs particularly, but probably with all animals to a certain extent, the tubercle bacilli taken with the food may penetrate the walls of the pharynx, and, advancing down the neck, gain entrance to the lungs. The same method of infection has been repeatedly noted with children. Again, it has been shown by the experiments of Desoubry and Porcher and those of Nicolas and Descos that various kinds of bacteria, including tubercle bacilli, may penetrate the intestine without causing any local lesion, and pass directly into the chyle vessels and from these into the blood whenever milk or fat constitutes a considerable proportion of the food.

These facts being admitted, it is absurd to hunt through the statistics for primary lesions of the intestine as an argument for or against infection with bovine tuberculosis. In the hospital statistics of Great Britain we find a considerable proportion of cases with children, 25 to 30 per cent., in which there are primary lesions of the intestine. In other countries such cases are quite rare. Heller has recently made 714 postmortems of children who had died of diphtheria and among these found 140 who had an associated affection of tuberculosis in various organs. Only 1.43 per cent. showed primary intestinal tuberculosis, but in 37.8 per cent. the primary lesion was in either the intestine, the mesenteric glands, or in other abdominal organs. It would appear, therefore, that even in Germany there is abundant evidence of ingestion tuberculosis.

This brings us to the question as to how we can tell whether a case of tuberculosis which is evidently caused by penetration of the bacilli through the walls of the pharynx or those of the intestine is due to bovine bacilli taken with the food or to human bacilli which have been swallowed with the saliva, etc. The test that Smith and Koch have laid down is that we should isolate the bacilli, and by the inoculation of cattle show that these bacilli have the virulence of the known bovine bacillus. This resumé of the condition of the experimental knowledge of the subject will explain to you the object in making the experiments which Dr. de Schweinitz has given in detail and which I have referred to as having been made by Dr. Mohler. They fill a gap which it

was necessary to bridge before we could fully and completely answer the arguments of those who believe it is unnecessary to consider the existence of bovine tuberculosis as a factor in the control of human tuberculosis.

You will observe that de Schweinitz has isolated tubercle bacilli from human lesions which when cultivated in the laboratory are of the bovine type, and that he has produced fatal disease in bovine animals by inoculating them subcutaneously with cultures of these bacilli. That is, he has fulfilled the most difficult requirements as to experimental work which those who oppose the theory of the transmission of bovine tuberculosis to man have been able to formulate. The results of these experiments make it necessary to admit either that human and bovine tuberculosis are identical, or that, being different, the bovine form is transmissible to man. There is no third theory by which the presence in human lesions of tubercle bacilli having the characteristics of the bovine type can be satisfactorily explained.

From the standpoint of experimental medicine, the evidence which has been brought forward should be sufficient to settle the question of the transmission of bovine tuberculosis to man. Koch plainly said in his London address that all that was necessary to decide with certainty whether the tuberculosis of the intestine was of human or of animal origin, was to cultivate in pure culture the tubercle bacilli found in the tubercular material and to inoculate cattle with them. In his latest address on this subject, which was made at the International Conference on Tuberculosis in Berlin, Koch practically abandons the discussion from the experimental standpoint and devotes his time to a consideration of clinical evidence. Naturally he finds none of the cases of supposed transmission of bovine tuberculosis to the human subject to be entirely free from the possibility of criticism. He seems to forget that if demonstrations could be so easily made from clinical observations it would be unnecessary to devote so much time and expense to experimentation.

In the address mentioned, he lays down a set of conditions which must be fulfilled to make clinical evidence convincing. Briefly, these are as follows :

1. Certain proof of tubercle, and where possible the primary focus must be supplied. (To this condition the only objection is that the primary focus which is made so much of, is of little

value in determining the origin of the infection, for the reasons already given.)

2. Other sources of infection must be excluded with certainty. (This condition absolutely excludes all clinical evidence bearing upon the subject of tubercular infection. How is it possible to prove that any given individual has not been exposed to the bacilli of human tuberculosis? He tells us that the main source of the infection of tuberculosis is the sputum of consumptive patients. We are all inclined to admit this; but suppose we try to get such clinical evidence in favor of this proposition as he asks for in regard to bovine infection, where are the cases recorded? You say a certain person who has recently contracted consumption had habitually been in a room with another consumptive patient and was infected by that patient. Very well; but how can you prove that that person never ate any tuberculous meat, never partook of any tuberculous milk, never ate any butter containing the tubercle bacillus, never had an opportunity to be indirectly infected from the hands of cooks or table utensils which had been in contact with tuberculous meat, milk or butter, and was never exposed to the infection scattered in so many ways by tuberculous animals? Can you exclude with certainty all these sources of infection? Certainly not; the thing is impossible. Now what becomes of the evidence upon which Koch bases the assertion that the main source of the infection in man is the sputum of consumptive patients? Surely he should be willing to try the clinical evidence bearing upon this point by the same requirements which he demands for the clinical evidence by which we endeavor to establish infection from bovine sources.)

3. In each case of alleged infection from milk affected with *Perlsucht*, the condition of the rest of the people who have taken the same milk should be borne in mind. These fellow-consumers form to a certain extent a control experiment, and if of the numerous persons who have drunk the suspected milk only a single one sickens, this weighs decidedly against the belief that this one person was infected by the common food. (Suppose we apply this principle to our clinical case of alleged sputum infection, what is the result? Are not scores of persons exposed to many consumptives without contracting the disease? Have not the most of us been exposed scores of times to consumptives without having contracted the disease? And yet, how erroneous it would be to ex-



clude clinical evidence suggesting contagion because only one of those exposed to a certain consumptive had contracted the malady.)

4. The source of the milk should be attended to. Since in recent years it has become more and more evident that milk containing tubercle bacilli is yielded only by such cows as suffer from tuberculosis of the udders, the general statement that some one has drunk milk from a cow suffering from Perlsucht no longer suffices to prove to us that Perlsucht bacilli have really reached his digestive organs. It must be milk from a cow with tuberculosis of the udder, and, therefore, a statement on this subject should not be wanting in a report on milk infection if it is said to be complete. (This argument is antiquated, since it has been proved again and again that the milk of tuberculous cows often contains tubercle bacilli when no lesions of the udder can be discovered. Of the many experiments that have been made to determine the proportion of tuberculous cows which yield infectious milk, the average results are about 15 per cent., while the cases with tuberculosis of the udder are not over 2 or 3 per cent. It is not necessary to comment further on these requirements.)

Koch advances another line of argument which I have heard elsewhere, and which appears to be most misleading. He says: "We cannot but expect that if tuberculous infection through partaking of meat and milk infected with Perlsucht really occurs as frequently as is asserted, direct observation must make this obvious." He then recalls the so-called cases of meat poisoning, and cases of illness resulting from the use of the flesh of animals which had suffered from splenic fever, also the distribution of typhoid infection through milk. "It is", he alleges, "extraordinarily characteristic of all these outbreaks that they do not occur as isolated illnesses, but in groups and often in epidemics. This could scarcely be otherwise, for the milk of a cow, the flesh of a sick animal, is practically always partaken of by several, and often by a great many persons at the same time, who will be infected and fall ill, certainly not as a whole, but on a larger or smaller percentage. \* \* \* A tuberculous infection must also take shape in the same way if tubercle bacilli which are virulent for man are found in meat or milk."

The fallacy of this argument lies in the difference in the illnesses referred to and in the conditions of exposure. The opportunities for contracting the illness known as meat poisoning,

or that of splenic fever are extremely rare, and it may reasonably be assumed when a group of such cases occur at the same time and near together that they are of common origin. Moreover, the period of incubation in these diseases is very short, and the symptoms are striking and serious from the beginning of the illness. Attention is immediately attracted to them. It is the very opposite with tuberculosis. There are opportunities everywhere for contracting it ; there may be a dozen cases in the same town, and yet if the individuals are not in the same family no one thinks of a common origin. Then the period of incubation is so long and the access of the disease is so mild that it does not attract attention until so long a time has elapsed that the incidents which occurred at time of infection have faded from the mind and can no more be recalled. Finally, the time which passes between infection and the appearance of marked symptoms of the disease varies so much with different individuals that if infection occurred at the same time with a number of persons the disease would not appear so simultaneously as to attract special attention, as it does in meat poisoning or in splenic fever infection. The comparison with the distribution of typhoid-fever infection through milk is a better one, but the difficulty of tracing this infection in a community where the disease is common and the sources of the contagion numerous may, I think, be appreciated by the physicians of Washington. But typhoid infection must, as a rule, be much more easily traced than tubercular infection, because the sources of the contagion are not so numerous nor widely distributed, the incubation is shorter and the symptoms are more serious at the beginning. On the other hand, so much of the milk and butter sent to market is infected with tubercle bacilli, and we consume these food products from so many different sources, that practically every one must take bovine bacilli into his digestive organs not once only, but many times. Now when the disease develops, even if we prove by the characteristics of the bacilli that it has been caused by germs of bovine origin, how can any one point with certainty to this milk or this butter, consumed weeks or months before, and say that it was the cause of the infection ?

Take, if you please, the average citizen who travels from place to place, passing his nights in sleeping cars under possibly infected blankets, or in hotel rooms of the history of which he knows nothing, who drinks at the fountains out of the common

drinking cups, who must necessarily come into close contact with many consumptives, who inhales dry sputum on the streets, if he becomes infected, can you point with certainty to the source of his infection? Certainly not; nor can you point out groups of patients who have been infected by one and the same consumptive person, although many individuals were exposed to that person. If this cannot be done in the case of infection from human sources, how can we expect it to be done with infection through meat, milk and butter?

We can only hope to get fairly satisfactory evidence as to the source of infection in the case of young children who have been in the house during their whole lives and who have not come into contact with any tuberculous persons. But in most cases it would appear, from the present condition of our knowledge, that the virulence of the bacilli for cattle will be the best evidence of the source of the infection: that is, whether it comes from man or from the lower animals. The experimental proofs of tubercle bacilli in human lesions, having all the virulence of the bovine bacillus, are incontestable, and should cause sanitarians to take adequate precautions against infection through the products of diseased animals. The frequency of infection from animal sources can only be determined by long and careful investigation, but we do know how common the disease is with cows, how often the bacilli are found in the milk, and how frequently tuberculosis attacks children at the milk-drinking age.

#### DISCUSSION OF THE PAPERS BY DRs. DE SCHWEINITZ AND SALMON ON TUBERCULOSIS.

**Dr. Kober**, in opening the discussion, said that the deductions drawn by the essayists were conclusive, and tended to negative the conclusions of Koch.

**Dr. Woodward** said that there was little to discuss; the facts all pointed one way. If Koch himself were present, he might have something to say, but we could say nothing.

He expressed appreciation of the work done and the results accomplished by Drs. Salmon and de Schweinitz, and he moved that the thanks of the Society be extended to these gentlemen for their labors and the present communications, which were of exceptional interest and importance.

[The motion was unanimously carried, and the President expressed the thanks of the Society in appropriate terms.]

**Dr. Kober** said that we owed much to veterinarians for what had



been accomplished in connection with this subject. Prof. Klencke, a German veterinarian, was the first to point out, in 1846, the possibility of infection of human beings through the milk of tuberculous cows. He observed 16 cases of scrofula in children, which he traced to four or five cows, and demonstrated, conclusively, the origin of the disease. He performed autopsies on the cows, and found the same lesions which were present in tuberculosis in human beings. Not a case of milk infection was recorded between 1846 and 1873. In the latter year one case was reported; 80 cases had been recorded since 1873.

Many instances had been recorded where several cases had been traced to the milk of one cow, and it was not necessary that the evidence should be as conclusive as demanded by Koch. With regard to the frequency with which the bacilli were found in the milk, no one questioned that typhoid fever could be transmitted through milk, yet the bacilli of the disease had been demonstrated in milk in only a few instances. Hence, he believed that Koch erred in his conclusions, and Drs. Salmon and de Schweinitz had shown wherein he did so.

**Dr. S. S. Adams** said that little need be said further, as the arguments already adduced were conclusive. His experience with primary tuberculosis of the intestines and mesentery had shown that infection of the glands frequently existed without any positive evidence of infiltration of the mucous membrane. The question was, was the disease really primary in these cases? It was very difficult to prove that no tuberculosis previously existed in some other part of the body. If we accepted the conclusion that a primary focus must be demonstrated in order to prove the existence of an infectious disease we would err many times. Who, for instance, could demonstrate the primary focus in tubercular meningitis? Yet, he had seen unmistakable evidence in infants where the infection was so clear as to be beyond question.

**Dr. Adams** related several cases in illustration. In one case the child was comatose when first seen; there was no history of tuberculosis in the family, and no possible infection from tuberculous cows; the parents had used every precaution to rear the child so that it would be healthy and strong. He tried, again and again, to discover the origin of the infection, but to no purpose. One day, however, the father accidentally gave the desired information; he remarked that it might be possible that the child acquired the disease from a tuberculous relative who used to hold the child. In another case the disease was acquired from an uncle who came into close contact with the child. But even in these cases we could not demonstrate the point of entrance of the infection, the primary focus. This was a weak point in Koch's conclusions, and he was glad that Drs. Salmon and de Schweinitz had shown that this was the case. The germ might pass directly through the membranes without exciting a primary local lesion.

CASE OF HERNIA; GANGRENOUS INTESTINE;  
OPERATION.\*

By GEORGE TULLY VAUGHAN, M. D., ASST. SURGEON-GENERAL,  
U. S. PUBLIC HEALTH AND MARINE HOSPITAL SERVICE.

The patient was a negro man, age 76. Had right inguinal hernia, which came down March 23, 1903, and was irreducible. Symptoms of strangulation developed, and twenty-four hours after the hernia came down he entered the hospital. Pulse 110; temperature 101. There was a tense tumor in the scrotum, tympanitic on percussion. Efforts at reduction having failed, an operation was performed. The constriction was at the internal ring. The gangrenous intestine was removed with an inch of sound intestine on each side, six inches in all, the usual technique being employed. When the sac was opened, dark fluid escaped; the sac lay behind the intestine; hence the tympanitic note. A portion of the mesentery which contained thrombi was also excised. The Murphy button was used to secure anastomosis. There was no stool for eight days after operation, in spite of enemata and forty small doses of calomel and soda. On the eighth day there were two stools. The button was discharged on the twenty-sixth day after operation. The patient recovered. The case was interesting on account of the man's age.

**Dr. Bovée** called attention to the electro-thermic angiotribe which he had recently exhibited. It did its work thoroughly, efficiently and safely, in 55 seconds. The method was superior to the use of the Murphy button.

**Dr. J. Ford Thompson** mentioned a case which he had recently reported. Years ago he had performed an operation upon a man, using the Murphy button. Recently he performed an autopsy upon the man, and found the button in the stomach; it had reposed there eight years, meantime giving no symptoms whatever, although its presence had been noted by the patient.

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\* Reported with specimen to the Medical Society of the District of Columbia April 29, 1903.

## CASE OF CANCER OF PYLORUS. OPERATION.\*

By GEORGE TULLY VAUGHAN, M. D., ASST. SURGEON-GENERAL,  
U. S. PUBLIC HEALTH AND MARINE HOSPITAL SERVICE.

The specimen consisted of the pylorus and contiguous part of the stomach, taken from a woman 38 years old, who had been married two years. Had had more or less stomach trouble all her life. During pregnancy the stomach symptoms were aggravated, and, after delivery, she gradually became worse until March, 1902. She vomited blood only once. The vomiting became almost incessant, and by August 28, 1902, she was "almost a skeleton." Pulse and temperature normal, and no tumor could be detected; tenderness over pyloric region. Diagnosis, obstruction at pylorus.

As the patient's condition would not permit anything more, Dr. Vaughan performed a palliative operation. A tumor of the pylorus was found, movable and without adhesions. Von Hacker's gastro-enterostomy was performed. Twenty days after operation the patient was discharged. She did well for a month, and then vomiting returned; she gradually became worse, and three months afterward she could not take solid food. The stomach was small, not dilated as is usual in such cases. A second operation was performed December 28. The tumor was found apparently unchanged, and the anastomosis was in good condition. Obstruction being suspected, however, at the point of anastomosis, this was dissected loose. The tumor was found to have encroached upon the opening of the anastomosis, so that only liquid food could pass. The pylorus was filled with a mass resembling a papilloma. The pylorus and about one half the stomach were removed, and an end-to-end anastomosis with two rows of sutures was made. January 7, 1903, she was allowed solid food, and three weeks after operation she was discharged cured. She did well for a week, but within a month the vomiting returned, and she died March 26, three months after the last operation. The stomach would have been removed *in toto*, but it was situated so high up under the ribs as to make such an operation practically impossible.

**Dr. I. S. Stone** exhibited a patient on whom he had performed gastro-enterostomy for pyloric cancer. He had hesitated at first to operate, because of the patient's condition. The Murphy button used was never passed, and Dr. Stone believed that he could de-

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\* Reported with specimen to the Medical Society of the District of Columbia April 29, 1903.



tect its presence in the stomach by palpation. After the operation, the tumor apparently disappeared; this was unexplainable. He believed, however, that the trouble at the pylorus was merely quiescent.

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## CASE OF INTESTINAL OBSTRUCTION.\*

By A. A. SNYDER, M. D.,

Washington, D. C.

A colored woman, age 20, was taken sick March 23, 1903, with "cold in the stomach"; had pain and absolute constipation; 27th, the pain disappeared, but there was vomiting. She was taken to hospital; her condition serious, with marked tympanites. A long rectal tube was inserted its whole length, but failed to relieve. 30th, Dr. Snyder opened the abdomen, and tapped the intestines in places, evacuating gallons of gas and fecal liquid. The intestines were inflated like balloons, and two large masses were gangrenous. The appendix was the longest he had ever seen. There was a kink in the large intestine just above the cecum on the right side and at the sigmoid on the left. As she was moribund the operation was suspended. She died next morning.

The most remarkable feature of the case was that when he introduced his arm up to the elbow through the abdominal incision he found that almost the entire colon was turned on itself, the ascending and descending portions were like two huge dark pillows filled with gas and liquid, forcing the diaphragm upward to the apices of the lungs. Two attempts were made to ignite the gas which escaped from the incised intestine, but the pressure of the flow was so strong that the lighted matches were extinguished.

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## Deaths of Members.

SAMUEL JACOBS RADCLIFFE, July 9, age 75.

ALONZO B. RICHARDSON, Superintendent of the Government Hospital for the Insane, June 27, age 51. Dr. Richardson was a member by invitation.

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\* Reported with specimen to the Medical Society of the District of Columbia April 1, 1903.

REGULATIONS OF THE MILK COMMISSION OF THE  
MEDICAL SOCIETY OF THE DISTRICT  
OF COLUMBIA.\*

1. *Name*.—The name of this body shall be "The Milk Commission of the Medical Society of the District of Columbia."

2. *Purposes*.—The objects of the Commission are to establish correct clinical standards of purity for cows' milk, to become responsible for a periodical inspection of the dairies under its patronage, to provide for chemical and biological examinations of the product, and the frequent scrutiny of the stock and dairy facilities by competent veterinarians, to secure for the consumers in the District of Columbia a pure milk supply which shall have three general requirements or standards of quality :

First. An absence of large numbers of microorganisms and the entire freedom of the milk from pathogenic varieties.

Second. Unvarying resistance to early fermentative change in the milk so that it may be kept under ordinary conditions without extraordinary care.

Third. A constant nutritive value of known chemical composition and a uniform relation between the percentage of the fats, proteids and carbohydrates.

3. *Personnel of the Commission*.—The Milk Commission of the Medical Society of the District of Columbia shall consist of five members of the Medical Society of the District of Columbia who shall be nominated by said Society whenever vacancies shall occur and they shall hold office until their successors are chosen and shall serve without compensation except as hereinafter provided.

4. *Officers of the Commission*.—The officers of the Milk Commission of the Medical Society of the District of Columbia shall consist of a president, secretary and treasurer selected from the members of said Commission.

5. *Scientific Assistants*.—The Milk Commission of the Medical Society of the District of Columbia, shall have power to appoint a bacteriologist, chemist, dairy inspector and veterinarians, and such other assistants as it shall deem necessary, at such compensation as it shall determine.

6. *The Bacteriologist*.—The bacteriologist shall, when instructed by the Commission, procure a specimen of milk from the dairy or from delivery wagons at intervals to be arranged between the Commission and the dairy, but without previous notice to the dairy. He shall test this milk for the number and nature of bacteria present in it, to the extent which the needs of safe milk demand. He shall also make a microscopic examination of the milk for pus cells. Milk free from pus and injurious germs and hav-

\* Reported by the Commission to the Society, July 6, 1903.

ing not more than 20,000 germs of any kind or kinds to the cubic centimeter shall be considered to be up to the required standard of purity.

7. *The Chemist.*—The chemist shall in a similar manner, when instructed by the Commission, procure and examine the milk for the percentages of proteids, fat, sugar, mineral matter and water present. He shall also test its chemical reaction and specific gravity, and shall examine it for the presence of foreign coloring or other matters or chemicals added as preservatives. Standard milk shall range from 1.029 to 1.034 specific gravity, be neutral or very faintly acid in reaction, contain not less than 3.5 per cent. proteid, from 4 to 5 per cent. sugar, and not less than 3.5 per cent. fat, and shall be free from all contaminating foreign matter and from all addition of chemical substances or coloring matters. Richness of cream in fat shall be specified and shall vary not more than 1 per cent. above or below the figure named in selling. Neither milk nor cream shall have been subjected to heat before the examination has been made, nor at any time unless so announced to the consumer. He shall also, when instructed by the Commission, examine the water supply used by producers and purveyors of milk.

8. *The Veterinary.*—The veterinary inspector shall, when instructed by the Commission and without previous warning to the dairy, inspect the cleanliness of the dairy in general, the care and cleanliness observed in milking, the care of the various utensils employed, the nature and quality of the food used and all other matters of a hygienic nature bearing upon the health of the cows and the cleanliness of the milk, including also as far as possible an inquiry into the health of the employees on the farms. He shall also see that the cows are free from tuberculosis or other disease.

9. *Subscribers.*—The subscribers to the Milk Commission of the Medical Society of the District of Columbia shall be divided into five classes, viz :

- A. Producers.
- B. Producers who sell to customers.
- C. Dealers not producers.
- D. Wholesale consumers, as hotels, lunch rooms, etc.
- E. Consumers.

Each subscriber will be governed by the provisions of the contracts hereinafter given and such rules and regulations as shall from time to time be promulgated by the Commission, not in conflict with said contract, due notice of the same to be given at least 30 days prior to the enforcement of the same.

10. *Fees.*—The Milk Commission of the Medical Society of the District of Columbia, being a voluntary body or corporation, must be supported by the fees of its subscribers who are its beneficiaries. The said fees shall be apportioned as follows :



Class A, 1-10 of a cent per quart produced.

Class B, \$3 per month ; 1-10 of a cent per quart produced.

Class C (not yet determined).

Class D, \$2 per month.

Class E, \$1 per month.

*Form of Contract.*—Articles of agreement entered into this — day of —, 1900, between the Milk Commission of the Medical Society of the District of Columbia of the first part and — of —, of the second part.

It is agreed by the said parties that these articles of agreement shall continue for a period of — from date.

The party of the second part agrees that the party of the first part shall procure a bacteriologist, a chemist and a veterinary inspector ; the bacteriologist to procure a specimen of the milk, either from the dairy or delivery wagon of said party of the second part, whenever the said party of the first part sees fit, at intervals of approximately one month, the time of procuring said milk to be without notice to the said party of the second part ; which bacteriologist shall test said milk for the number and nature of bacteria present to the extent which the needs of safe milk demand, and make a microscopic examination for pus cells and injurious germs. It is also agreed by the parties hereto that the required standard of purity shall be milk free from pus or injurious germs and having not more than twenty thousand germs of any kind or kinds to the cubic centimeter.

It is agreed by the said party of the second part that the chemist of the party of the first part shall examine said milk for the percentages of proteids, fat, sugar, mineral matter and water present ; shall test its chemical reaction and specific gravity, and shall examine it for the presence of foreign coloring or other matters or chemicals. It is agreed by both parties that the required standard shall range from 1.029 to 1.034 specific gravity, be neutral or very faintly acid in reaction, contain not less than 3.5 per cent. proteid, from 4 per cent. to 5 per cent. sugar, and not less than 3.5 per cent. fat (milk of a higher percentage to be so specified on each bottle), and shall be free from all contaminating foreign matter and from all additions of chemical substances or coloring matters ; that richness of cream in fat shall be specified, and shall vary not more than 1 per cent. above or below the figure named, and that neither milk nor cream shall have been subjected to heat before the examination nor shall be at any time unless so announced to the consumer.

It is agreed by both parties that the veterinary inspector shall, without previous warning to the party of the second part or his agents, inspect the cleanliness of the dairy in general, the care and cleanliness observed in milking, the care of the various utensils employed, the nature and quality of the food used, and all other

matters of a hygienic nature bearing upon the health of the cows and the cleanliness of the milk, including so far as possible the inquiry into the health of the employees in and about the dairies ; and that he shall see that the cows are free from tuberculosis or other diseases.

It is also agreed by both parties that a fee shall be charged of \$—— during the continuance of this contract.

It is agreed that all examinations by the experts shall be made only upon instruction by the party of the first part.

It is agreed by both parties that if the examinations as aforesaid find the milk up to the aforesaid required standards, the said party of the first part shall give a certificate to said party of the second part, as follows :

MILK COMMISSION OF THE MEDICAL SOCIETY  
OF THE DISTRICT OF COLUMBIA,

Date —— —.

The veterinary inspector of this Commission has examined the dairy of —— — and reports it to be well kept and clean and the cows to be in a healthy condition.

The bacteriologist reports the milk free from germs within the limits of the standards of the Commission.

The chemist reports that the milk is of standard richness and that he has discovered no impurities, coloring matters, chemical preservatives, or harmful substances.

The Commission certifies to these statements of the examiners, it being understood, however, that this certificate is good for only one month from date.

[Signed by the Commission.]

It is further agreed by both parties hereto that in case an examination shows the milk not to be up to the required standard the said party of the second part may have another examination made within a short time at the direction of the Commission.

It is agreed by the party of the second part that the milk furnished by him to consumers shall be in glass jars, hermetically sealed in a manner satisfactory to the party of the first part, and as a guarantee to the consumer that the examination has been regularly conducted, he shall paste over the mouth of each jar or give to the consumer with every jar a label similar to the following :

MILK COMMISSION OF THE MEDICAL SOCIETY  
OF THE DISTRICT OF COLUMBIA,

Date —— —.

Milk from the dairy of —— — has been recently examined by the inspectors of this Commission and found of the required standard.

This certificate is good for only one month from date.

[Signed by the Commission.]



It is further agreed by the said party of the second part that this agreement is entered into by the parties hereto solely at the request of said party of the second part, that no liability shall accrue to said party of the first part except or beyond that expressly stated in these articles of agreement, and that he, the said party of the second part, will assume all risk and be liable for any complaint alleged to be traceable to the examinations, issuance of certificate and labels aforesaid.

It is further agreed by the said party of the second part that the rules and regulations of the party of the first part and the general requirements governing the location and condition of buildings, pastures, water supply, stables, herd, feeding and watering, employees, milkroom, milk utensils, milkers and milking, care and delivery of milk, which shall from time to time be promulgated by said party of the first part, not in conflict with the provisions of this contract, will be binding upon the said party of the second part and may be considered by said party of the second part as though they were a part of this contract at the time of the signing of the same, provided however that a notice of the same be furnished the party of the second part at least 30 days before the enforcement of the said rules, regulations or general requirements, each and all of them.

In testimony the said parties hereto have hereunto set their hands and seals this —— day of ——, 190 —.

[SEAL.]

[SEAL.]

#### REQUIREMENTS.

*General.*—Every facility shall be afforded at all times to members of the Commission or its representatives for making examinations. Samples of milk for examination shall be furnished whenever requested.

Whenever requested, the dairyman shall furnish transportation for the representative of the Commission between the farm and the most convenient railroad station, or from his farm to a neighboring one.

This agreement can at any time be declared void by the Commission.

*Location of Buildings, Pastures, Etc.*—The location of the stable, dairy and pastures shall be subject to the approval of the Commission.

All buildings shall be so located that they will have good drainage. The stable shall be on relatively elevated ground.

No building used for dairy purposes shall be within 200 yards of any marshy ground or stagnant water, and no chicken coop, hogpen, horse stable, privy, watercloset or urinal shall be within 100 feet of the building used for keeping or handling milk.



The surroundings of all buildings shall be kept clean and in good order. The accumulation of dirt, rubbish, manure or decayed matter shall not be permitted.

*Water Supply.*—The dairy shall be supplied with an abundance of pure water, the source of which shall not be within 250 feet of the stable or of any barnyard, privy or other possible source of contamination.

Water from wells or springs which are not protected against the entrance of flood and surface water shall not be used for cooling milk or cleaning utensils.

A sample of the water shall be furnished to the Commission at any time requested, and the water shall be examined at least once every year.

*Stables.*—The stable shall be arranged with a view to the comfort of the animals and to facilitate the work of cleaning, milking, etc.

The floor shall be smooth and incapable of absorbing liquids, and sloping sufficiently to cause good drainage.

The gutters behind the cows shall be open and with sufficient incline to cause good drainage.

The side walls and ceiling shall be so tight as to prevent dust sifting through, and they shall be so constructed as to prevent cobwebs and dust from collecting and easy to be cleaned.

There shall be windows in at least two sides of the stable, providing not less than 3 square feet of unobstructed window glass to each animal.

Each animal shall be allowed at least as many cubic feet of air space as the number of pounds of its live weight.

The ventilation shall be so efficient that one will not notice a stale, disagreeable, or strong animal odor on entering the building.

The stalls shall be comfortable, at least 3 feet wide, or  $3\frac{1}{2}$  feet for a large cow, and so long that the animal need not habitually stand with feet in the gutter.

The stable yard shall be well drained so as to be usually dry, and no pools allowed to form.

A suitable place, at least 200 feet distant from the stable building, shall be provided for cows not approved by the veterinarian and those separated from the herd for any cause except calving.

A special room, conveniently located, shall be provided for the milkers to wash in before and during milking.

The stable shall be kept scrupulously clean.

The interior walls shall be kept clean and light colored. If whitewash is used, a fresh coat shall be applied at least three times a year, and oftener, if necessary, to keep the walls clean and white. Mould spots shall not be permitted.

The accumulation of dirt, cobwebs, rubbish, and materials not needed for stable work shall not be permitted.

At least half an hour before milking time, stables shall be

thoroughly cleaned and ventilated and manure removed from the building.

The stable floors shall be sprinkled when necessary, to keep down the dust.

When cows are kept in the stable continuously (as in stormy weather), it shall be cleaned often enough to be kept as free as possible from manurial odors. If necessary, land plaster shall be used for absorbing liquids and odors.

At least once every two months the mangers shall be scrubbed with a brush and water and soap, lye, or washing powder.

Animals of other species shall not be kept in the same room with milch cows.

No strong smelling material shall be allowed in or near the stable. If manure is on the premises, it shall be at least 100 feet distant from the stable.

*The Dairy Herd.*—The herd shall include no sick animal, and especially none showing signs of tuberculosis, contagious abortion, or other trouble associated with parturition, or with mammitis, mammary abscess, or other udder disease, persistent diarrhoea, actinomycosis, fever, or any febrile disease. Such animals and any other diseased animal on the farm shall be promptly reported to the Commission and disposed of as it directs.

The herd shall be examined thoroughly by the veterinarian of the Commission at least once in three months and whenever ordered by the Commission, and animals unsatisfactory to the Commission shall be removed. The herd shall include no animal not approved by the veterinarian.

Animals proposed to be added to the herd shall be kept in a separate building until approved by the veterinarian, after a physical examination and tuberculin test.

Tuberculin shall be used in examination for tuberculosis whenever there is reason to suspect the presence of this disease.

Any animal showing evidence of ill-health or suspected of being ill, and any animal off feed or excited, shall be at once removed from the main stable, and the milk of all such shall be discarded from the market milk.

Milch cows shall be groomed not more than one hour before every milking. A stiff brush shall be used to remove dry matter and places soiled with fresh manure shall be cleaned by washing.

Long hair on the udder and flanks shall be clipped.

Cows shall not be exposed to inclement weather.

Cows shall never be unduly excited by loud talking, abuse, or otherwise. They shall not be driven faster than a walk. They shall at all times be treated quietly and kindly.

Any cow in the habit of hooking others shall be either dehorned or separated from the herd.

No dusty or mouldy hay or straw, bedding from horse stalls, or other unclean material shall be used for bedding cows.

Cows shall be removed from the stable in which the herd is kept at least fifteen days before due to calve and shall not be returned until at least three days after calving.

The herd milk shall be maintained at an average quality to test not less than 3.5 per cent. of fat and as close as possible to 4 per cent.

*Feeding and Watering.*—All food stuffs shall be kept in an apartment separate from the animals.

Only those foods shall be used which consist of fresh, palatable, or nutritious materials, such as are known will not injure the health of the cows or affect the taste or character of the milk.

Cows shall be fed liberally and regularly—that is, in the same order and at the same hour every day.

A well-balanced ration shall be used, and changes of feed shall be made slowly. An entire change of grain shall be made only gradually, extending over several days.

The ration shall be reported to the Commission whenever it is proposed to materially change it, the changes being named.

If garlic or other weeds which cause undesirable flavors in milk are in the pasture, cows shall be brought to the stable long enough before milking that the weed flavor may not be noticeable in the milk. A light feed of hay or some sweet forage before milking appears to assist in the removal of weed flavors.

No dry or dusty food shall be given within one hour previous to milking; if its use is necessary, it shall be sprinkled before it is fed.

Cows shall be watered at least twice a day.

Pure water shall be provided in abundance and easy of access; it shall be fresh, but not freezing cold.

Cows shall not be allowed to drink regularly from stagnant pools.

Salt shall always be accessible or given at frequent intervals.

*Employees.*—Employees shall be clean in habits and appearance.

They shall be continually vigilant to keep everything connected with the cattle and milk scrupulously clean and in good order.

The dairyman shall keep informed as to the health of all employees and the members of their households.

No person having throat trouble or being otherwise out of health shall be admitted to the stable or dairy room.

The existence of smallpox, typhoid fever, diphtheria, scarlet fever, measles, or other contagious disease on or in the vicinity of the dairy farm shall be promptly reported to the Commission, and the sale of milk shall be stopped till its resumption is authorized.

No person connected with the dairy shall enter a house where it is known that there has been a contagious disease until the house has been disinfected.

No employee or other person shall be permitted in the dairy who has been in contact with any contagious disease.



While engaged about the dairy or in handling milk, the use of tobacco or intoxicating liquors shall not be permitted.

*Milk Room.*—There shall be a room which shall be used for no other purpose than to provide a place for handling the milk, storing clean milk utensils, and holding fresh milk previous to its removal from the dairy.

It shall be within easy access of the stable, but so placed that it can not easily be reached by dust or odors from the stable or yard or other source.

If under the same roof with the stable, it shall be separated therefrom by a light, clean and ventilated room or passageway at least 4 feet wide and 4 feet long, with doors kept closed by springs. Or the arrangement shall be such that it will be necessary to pass out-of-doors in going from the stable to the milk room.

This room shall be entered only by persons having business therein ; no one shall be admitted who has been where a contagious disease exists or who is wearing dirty garments.

It shall be kept scrupulously clean, and shall be occasionally thoroughly dried in all its parts.

It shall contain nothing that is not required for handling milk.

Dairy utensils shall be removed to another room for cleaning as soon as they have been used.

Sour milk shall not be left in the milk room.

The room shall be well lighted.

Windows and doors shall be fitted with screens to keep out insects.

The room shall have a hard floor, impervious to moisture.

The drain shall be provided with a common S-trap, and so constructed that it can easily be cleaned by steam or disinfectants. Except under unusual conditions, the drain shall be at least 200 feet long.

No permanently moist place, except running water, shall be allowed in its vicinity.

The walls and ceiling shall be kept clean and light colored. If whitewash is used, a fresh coat shall be applied at least every three months, or oftener if necessary, to keep the walls clean.

Spots of mould shall not be allowed to develop on the walls.

If there are shelves of wood in the room, they shall be painted or oiled.

No accumulation of dirt, cobwebs, rubbish, or unclean materials shall be permitted.

*Milk Utensils.*—So far as possible, dairy utensils shall be made of metal, glass, or glazed earthenware, and shall be of simple construction so as to be easily cleaned ; joints and rims of metal utensils shall be smooth and cracks entirely filled with solder.

No milk vessels shall be used which are old, rusty, or dilapidated.

Vessels used for carrying milk shall be used for nothing else.

No milk vessels or utensils except pails shall be taken into the stable or milking room.

All utensils shall be cleaned in a separate wash room (not in a dwelling house or in the milk room), especially fitted for the purpose, containing a boiler and a tight chest for steaming or ample facilities for sterilizing with boiling water.

All utensils shall be cleaned immediately after use.

Before cleaning, milk utensils shall be rinsed with cold or lukewarm water; they shall then be washed thoroughly with hot water with the aid of some cleaning preparation (other than laundry soap or inferior washing powder), as sal soda, then rinsed with clean water and sterilized by exposure for at least ten minutes to live steam or water that is actually boiling.

Every part of an article, outer as well as inner surfaces, shall be cleaned with a brush, or be in plain view when cleaned.

After cleaning, vessels shall be kept inverted, without covers, in a clean, dry, dustless and odorless atmosphere.

Cleaning cloths shall be washed and sterilized daily.

Sponges shall not be used for cleaning.

*Milkers and Milking.*—Before commencing to milk, the milker's hands shall be carefully washed, using soap and nail brush, and then rinsed in clean water.

A special suit of clean outer garments of white cotton or linen, and cap, shall be worn during milking and at no other time; when not in use, these must not be kept in the stable or living room, but in a clean and ventilated place.

Just before milking, the udder and surrounding parts of every cow shall be brushed and then wiped with a cloth, clean and damp, but not dripping.

The milker's hands shall be kept dry when milking; they shall not come in contact with the milk.

The first three or four streams of milk from each teat shall be drawn into a separate vessel to be thrown away, but not into the gutter nor upon the floor.

Milking shall be done in a quiet, clean and thorough manner, and at the same hours daily.

Milkers shall avoid handling the cows more than necessary.

No strange person or animal shall be allowed in the stable or milking room at milking time.

If the milk from a cow is bloody, stringy, or thick, or if it has an unnatural appearance, or if manure gets into it, it shall be discarded and the pail washed and sterilized before it is again used.

Cows separated from the herd shall be milked after the herd is milked or by other milkers than those employed with the herd. The milk from any cow whose health is suspected shall be discarded, or if fed to farm animals, it shall first be heated above 180 degrees F.

*Care and Delivery of Milk.*—Immediately after each cow is milked, the milk shall be taken to the milk room.

It shall then be promptly strained through a fine wire gauze and a layer of absorbent cotton, protected on either side by a piece of cheese cloth.

It shall be thoroughly aerated by some modern appliance and cooled to a temperature of 45 degrees F. or lower. The cooling shall be done within fifteen minutes after being drawn and the milk shall then be kept constantly at or below the temperature stated.

Milk shall be stored, while on the farm, only in the regular milk room, and, except for special reason, it shall be kept in a covered vessel.

When milk is stored in cold water in a tank, the water shall be changed often enough to prevent its having any unpleasant smell or appearance. Care shall be taken to have the water higher than the level of milk in the cans. The storage tank or ice box shall be thoroughly scrubbed out at least once a week. The overflow pipe shall be properly trapped to prevent the entrance of sewer gas.

No ice shall be put into the milk, and it shall not be allowed to freeze.

Night and morning milk shall not be mixed.

No preservative or other substance shall be added to milk for any purpose, and no part of the milk shall be removed.

The addition or subtraction of cream may be practiced only when specially permitted by the Commission for the purpose of producing milk of guaranteed standard.

Every possible precaution shall be taken to improve the keeping quality of the milk, to maintain its purity, and especially to prevent the entrance of objectionable bacteria.

Milk for retail trade shall be placed in flint-glass jars at the dairy where produced, and preferably as soon as it has been cooled, and no jar shall be opened before delivery.

The jars shall be of a pattern which has a comparatively simple and cleanly method of closing.

The jars shall be filled by hand, pouring from a pitcher or can or by a machine constructed so that it may be completely cleaned. Unnecessary spilling of milk when the jars are being filled shall be avoided, and milk so spilled shall not again be put into them.

As soon as filled the jars shall be sealed and a label affixed bearing the date of the milking, the names of the dairyman and distributing agent, also the special mark adopted by the Commission.

In warm weather the glass jars of milk shall be kept surrounded by ice-water or ice.

Milk packages shall not be unnecessarily agitated and they shall be protected from the heat of the sun.

Milk for wholesale trade shall be in vessels sealed before leaving the milk room.



As much care shall be exercised during transportation as at the dairy.

No milk shall be sent from the dairy which is more than eighteen hours old.

While awaiting delivery in the city, milk shall be held in a clean room not used for domestic purposes.

Delivery wagons shall be so constructed as to protect milk from the weather, and all fittings and inside parts shall be cleaned frequently; in warm weather they shall be washed daily with warm water.

The collection of empty bottles and milk tickets or checks from houses where an infectious disease is known to exist, shall be made by other persons and vehicles than those delivering the milk. When returned to the dairy, the bottles shall be taken to a separate building and thoroughly sterilized before being carried to the dairy room, and all such collected tickets and checks shall be promptly recorded and destroyed.

All tickets, checks and labels on jars or bottles shall be new when delivered to consumers, and none shall be used a second time.

Any regulation of the Health Department of the District of Columbia now in force or hereafter adopted by said Health Department, not herein mentioned, will be considered a part of these regulations.

*Certificates.*—A dairy, the milk of which shall be found by the examinations to be up to the standard of the Commission, shall receive a certificate from the Commission, which shall read as follows:

MILK COMMISSION OF THE MEDICAL SOCIETY  
OF THE DISTRICT OF COLUMBIA,

Date ————.

The veterinary inspector of the Commission has examined the dairy of Mr. ———— and reports it to be well kept and clean, and the cows to be in a healthy condition.

The bacteriologist reports that the milk does not contain germs beyond the limits of the standards of the Commission.

The chemist reports that the milk is of standard richness, and that he has discovered in it no impurities, coloring matters, chemical preservatives, or harmful substances.

The Commission certifies to these statements of the examiners. It is understood and agreed to by the said Mr. ———— that this certificate is good for not more than ———— from date, when another examination is to be made.

[Signed by the Commission.]

*Re-Examination.*—In case an examination shows the milk not up to the standard, the dairy may have a re-examination made within a week or within a short time, at the discretion of the Commission.

*Labels of Certification.*—Milk furnished by the dealers to whom certificates have been issued shall be furnished to consumers in glass bottles hermetically sealed in a manner satisfactory to the Commission. In addition to the sealing, and as a guarantee to the consumer that the examination has been regularly conducted, there shall be pasted over the mouth of the jar or handed to the consumer with every jar, according to the discretion of the Commission, a certificate slip which shall read as follows :

MILK COMMISSION OF THE MEDICAL SOCIETY  
OF THE DISTRICT OF COLUMBIA,

Milk from the dairy of Mr. \_\_\_\_\_ has been recently examined by the experts of the Milk Commission and found to be fully up to the required standards. Another examination is to be made within a month, and, if satisfactory, new labels for the bottles will be issued, dated \_\_\_\_\_.

Notice the dates.

FORM OF VETERINARIAN'S REPORT,

MILK COMMISSION OF THE MEDICAL SOCIETY  
OF THE DISTRICT OF COLUMBIA.

WASHINGTON, D. C., \_\_\_\_\_, 190—.

*Secretary of the Milk Commission.*

DEAR SIR : I have examined, as requested by the commission, the dairy of \_\_\_\_\_ at \_\_\_\_\_, and find the following conditions :

I. \_\_\_\_\_ milking cows, \_\_\_\_\_ hospital cows, \_\_\_\_\_ dry cows, \_\_\_\_\_ cows added since last report, \_\_\_\_\_ cows now in quarantine, \_\_\_\_\_ cows recently calved, \_\_\_\_\_ cows sick since last report. Total number of cows in herd \_\_\_\_\_, of which \_\_\_\_\_ have been tested with tuberculin.

II. Conditions of milch cows at present, good, \_\_\_\_\_.

III. Food employed, \_\_\_\_\_.

IV. Condition of stables : ventilation, \_\_\_\_\_; heat, \_\_\_\_\_; floors, \_\_\_\_\_; troughs, \_\_\_\_\_; cleanliness, etc., \_\_\_\_\_; dimensions of stables, \_\_\_\_\_; condition of other buildings, good.

V. Health of employees and their families, so far as ascertained, is good.

VI. Source and character of water in dairy and stables, \_\_\_\_\_.

VII. The general precautions of cleanliness in milking and the care of the milk are satisfactory.

I therefore recommend that milk from this dairy be submitted to the bacteriologist and chemist of the Commission for their examinations.

Yours respectfully,

\_\_\_\_\_, V. M. D., *Veterinarian.*

## FORM OF BACTERIOLOGIST'S REPORT.

MILK COMMISSION OF THE MEDICAL SOCIETY  
OF THE DISTRICT OF COLUMBIA.

WASHINGTON, D. C., ————, 190—.

*Secretary of the Milk Commission.*

DEAR SIR: At the request of the Commission, received on ———, 190—, milk from the dairy of ————, labeled ————, was obtained by me on ———, 190—, at ——— street at — o'clock — M., and examined at — o'clock — M., with the following results:

Number of bacteria per c.c. of milk, ———.

I have been unable to detect any pathogenic organisms or evidence of purulent inflammation of the udder.

I therefore recommend the milk as coming up to the bacteriologic standards adopted by the Commission.

I find the milk bottles to be sealed in the manner prescribed by the Commission.

Yours respectfully,

—————, *Bacteriologist.*

## FORM OF CHEMIST'S REPORT.

MILK COMMISSION OF THE MEDICAL SOCIETY  
OF THE DISTRICT OF COLUMBIA.

WASHINGTON, D. C., ————, 190—.

*Secretary of the Milk Commission.*

DEAR SIR: At the request of the Commission, received on ———, 190—, milk from the dairy of ————, labeled ————, was obtained by me on ———, 190—, at ——— street at — o'clock — M., and examined at — o'clock — M., with the following results:

Total solids (by evaporation of weighed amount in platinum basin), ———; fat (Leffmann-Beam method), ———; ash (by burning off solids obtained as above), ———; total proteids (Kjeldahl-Gunning method, factor 6.25), ———; preservatives and added color, none; specific gravity, ———.

I therefore recommend the milk as coming up to the chemical standards adopted by the Commission.

I find the milk bottles to be sealed in the manner prescribed by the Commission.

Yours respectfully,

—————, *Chemist.*

When the Commission wishes to have an examination made, a postal card, like the following, is sent to the expert:



MILK COMMISSION OF THE MEDICAL SOCIETY  
OF THE DISTRICT OF COLUMBIA.

Dr. \_\_\_\_\_.

DEAR DOCTOR: Please examine milk—dairy—of \_\_\_\_\_ at \_\_\_\_\_, \_\_\_\_\_ at \_\_\_\_\_, and send me your report at your earliest convenience.

Yours respectfully,

SECRETARY OF THE MILK COMMISSION,  
MEDICAL SOCIETY, DISTRICT OF COLUMBIA.

*Information.*—No statement for publication to any dairyman shall be given by or in the name of any individual member, but only after consideration by the Commission and in the name of "The Milk Commission of the Medical Society of the District of Columbia."

A list of approved producers and dealers shall be furnished quarterly to the members of the Medical Society of the District of Columbia for the protection of their patients.

*Change of Standard.*—The Commission reserves the right to change its standard, in any reasonable manner, upon due notice being given to the subscriber, at least 30 days prior to its enforcement.

*Conference Committee.*—The subscribers may, whenever they so elect, appoint a conference committee from their own number to bring such matters before the Milk Commission as they may deem essential for their interests. Nothing in this shall be construed to prevent any individual subscriber from appearing before the Commission in his own or others interests.

The Milk Commission of the Medical Society of the District of Columbia shall hold meetings at such times and places as it shall select.

## EXCHANGES.

The following exchanges have been received. If others have been sent, they have not been received. Our publishing address is 618 F Street, N. W., Washington, D. C.

*Providence Medical Journal*, Providence, R. I.; *Albany Medical Annals*, Albany, N. Y.; *Buffalo Medical Journal*, Buffalo, N. Y.; *New York State Journal of Medicine and American Gynecology*, New York City; *Louisville Monthly Journal of Medicine and Surgery*, Louisville, Ky.; *Journal of the Michigan State Medical Society*, Detroit, Mich.; *Saint Louis Medical and Surgical Journal*, St. Louis Mo.; *Dallas Medical Journal*, Dallas, Texas; *Pacific Medical Journal*, San Francisco, Cal.

AMENDMENTS TO THE CONSTITUTION AND BY-LAWS OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.\*

**July 1, 1901.**—Section 9 of the By-Laws (see page 12) was amended to read : “ Every motion must be given to the President, *and at his discretion, the mover may be required to put the motion* in writing, and it shall be immediately discussed and voted on,” etc., etc. The words in italics constitute the amendment.

**January 8, 1902.**—The following words were struck out of Article IV, Section 4, of the Constitution (see page 6) : “ also a Committee on Legislation, consisting of nine active members ; ” and the word “ also ” in line 4 of the same section. The number of the section was changed from 4 to 5, and of section 5 from 5 to 6, and a new section 4 made, as follows : “ There shall be an Executive Committee, composed of 15 active members, appointed by the President in January, 1902. Of the members thus appointed 3 shall serve for 1 year, 3 for 2 years, 3 for 3 years, 3 for 4 years and 3 for 5 years. The President, after his election at the stated meeting in January, 1903, and in each succeeding year, shall fill the vacancies in this committee by the appointment of 3 active members who shall each serve for 5 years. When a vacancy occurs upon this committee by resignation or otherwise, the President shall appoint an active member to fill the unexpired term.”

Section 8 of the By-laws (see page 12) was also amended by striking out the second paragraph and inserting the following : “ It shall be the duty of the Executive Committee to keep informed in all matters concerning the interests of the medical profession generally, and of this Society and its members in particular ; to consider such resolutions as may be referred to it by the Society ; to suggest improvements in the conduct of the business of the Society ; to consider and report upon matters requiring legislative action ; to represent the Society before Congress and the Commissioners of the District of Columbia ; and to report its operations to the Society from time to time, as occasion may require, together with such recommendations as it may deem proper.”

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\* Adopted since January 4, 1897.

## REPORT OF MILK COMMITTEE.

WASHINGTON, D. C., *April 29, 1903.*

TO THE MEDICAL SOCIETY, D. C.

Your *Milk Committee* wishes to submit the following report :

We have carefully considered the question of the milk supply in the District of Columbia, with the result that your Committee finds that it has no power to enforce rules governing the care of the dairy farms. Nor has it the power to enforce any penalty for the grossest negligence. We therefore believe that it would be wise for this Society to appoint a Milk Commission. We believe that by the creation of such a Commission it will subserve the best interest of the community, and thus enlarge the scope of milk supervision. Such a Commission has been created in other cities, namely, Boston, New York and Philadelphia, resulting in a marked improvement of the milk supply. A regular standard of milk purity should be adopted, and the dairies conforming to this standard should be given a certificate indicating the result of the inspection and bacteriological purity. Should their product be below the standard, the certificate should be withheld.

This Commission should have the power to appoint a veterinarian, bacteriologist, and inspectors for this work. This is usual in other cities. These persons are paid by the owners of the dairies and dairy farms inspected. It would be a simple matter to adopt such methods and regulations as are found in the cities named, and such as may be found applicable to our needs.

We therefore recommend that a committee be appointed to formulate plans for the creation of such a Commission.

Your committee inspected the Walker-Gordon dairy on April 24 and 26, 1903, and found the dairy methods and barns above the average. The stable accommodations have not yet been completed. The old stock of cows was in good condition; the new cows will need much care in feeding and grooming to bring them up to the standard.

We are informed that there will be a marked improvement in the sanitary condition of the barns and cows at the time of milking when the men become more familiar with the work.

Respectfully submitted,

W. M. SPRIGG, M. D.

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*NORTHWEST MEDICINE.*

We have received a copy of *Northwest Medicine*, a new medical journal published at Seattle, Washington. Dr. Williams, formerly of this city, is editor-in-chief.



PROCEEDINGS OF THE MEDICAL SOCIETY OF THE  
DISTRICT OF COLUMBIA.

**Wednesday, April 1, 1903.**—The President, Dr. Kober, in the chair; over 58 members present.

Dr. Hasbrouck presented the following: "*Resolved*: That it is the sense of this Society that hereafter no more than three pathological specimens be exhibited at any one meeting, and that the opening of the discussion thereon the same evening be not postponed for any reason whatever." After discussion, the resolution was referred to the Executive Committee for consideration, together with the suggestion by Dr. Morgan that the time allowed for the discussion of specimens be definitely limited, and the suggestion by Dr. Stone that the Corresponding Secretary be requested to arrange the program with reference to the time required for the reading and discussion of the paper or papers of the evening.

The following cases and specimens were presented:

By Dr. J. Ford Thompson: Cystic Goitre.

By Dr. Snyder: Intestinal Obstruction. Discussed by Drs. D. S. Lamb and Banister. See page 250.

Dr. J. Ford Thompson read a paper on "Three Cases of Tetanus Successfully Treated." Discussed by Drs. Borden, Vaughan, LaGarde, Reyburn, D. Olin Leech and Acker. See page 159.

Dr. Banister reported a case of Malta Fever in Washington. Discussed by Drs. Neff, R. S. Lamb and A. F. A. King. See page 166.

The Board of Censors not being ready to report, the Society took a recess until

**Wednesday, April 8.**—The President, Dr. Kober, in the chair; over 54 members present.

A letter was read from Dr. C. DeWitt, Ass't Surgeon General, U. S. A., inviting the members of the Society to attend the closing exercises of the Army Medical School, at the National Museum at 3 o'clock, April 14.

Dr. S. S. Adams announced the illness of Dr. Samuel J. Radcliffe, an old and honored member of the Society, and moved the adoption of a resolution conveying to him the sympathy and best wishes of the Society. The resolution was unanimously adopted, and the Corresponding Secretary was requested to notify him accordingly.

Dr. D. S. Lamb presented the following specimens:

1. Amyloid liver and spleen. Discussed by Drs. Acker, Chappell, Balloch, Claytor and Shands. See page 184.

2. Pachymeningitis. Discussed by Dr. A. B. Richardson. See page 191.

3. Sarcoma of the bladder. Discussed by Drs. T. C. Smith, J. Ford Thompson and Chappell. See page 203.

Dr. I. S. Stone read the paper of the evening. Subject: "The Need of a Hospital and Better Facilities for the Treatment of Nervous Diseases in Washington, D. C." Discussed by Drs. A. B. Richardson, D. S. Lamb, E. L. Morgan, Keech, Stevenson, Reburn, J. Taber Johnson, J. Dudley Morgan, A. F. A. King, S. S. Adams, Woodward and W. L. Robins. See page 192.

The subject was referred to the Executive Committee with instructions to inquire as to the need of additional hospital facilities in Washington, D. C.

The Board of Censors not being ready to report, the Society took a recess until

**Wednesday, April 15.**—The President, Dr. Kober, in the chair. Over 39 members present.

The following were elected active members :

Truman Abbe,	Columbia Univ., N. Y.,	1899
A. B. Bennett, Jr.,	Columbian University,	1901
Frank Lee Biscoe,	Georgetown University,	1901
Charles H. Clark,	Sterling Medical College,	1893
D. H. Hazen,	Georgetown University,	1873
Henry M. Jewett,	Columbian University,	1902
Francis S. Machen,	Georgetown University,	1901
J. F. McKaig,	Georgetown University,	1893
Aubrey H. Staples,	Baltimore University,	1896
G. W. Warren,	Baltimore University,	1892

The Corresponding Secretary reported that by authority of the Society he had invited Dr. J. B. Murphy, of Chicago, to address the Society, and he had accepted, and had appointed Friday, May 15. The Society accordingly decided to meet that date instead of Wednesday, the 13th. Drs. Hickling, McLaughlin and Reisinger were appointed a committee to arrange for a smoker May 15, to meet Dr. Murphy.

The meeting of April 1, was then adjourned and the regular meeting of April 15 held.

Dr. Woodward asked when the committee upon the Walker-Gordon Milk Laboratory would present a report, and no information upon the point being forthcoming, he moved that the committee be instructed to report to the Society at the next meeting as to its relations to the Society and the people of the District of Columbia, the quality of milk furnished, and whether it had afforded the members of this Society free facilities for inspecting the laboratory. Carried.

The Chairman of the Editing Committee was authorized to have a small book-case, the property of the Society, put in order for

use of his committee and to present the bill to the Treasurer for payment.

Dr. J. Ford Thompson presented a specimen of gall-stones with history. Discussed by Drs. T. C. Smith, Keech, I. S. Stone, J. Dudley Morgan, R. S. Lamb, R. H. Graham and Friedrich. See page 180.

Dr. Keech read a paper on "The Normal Age of Man." Discussed by Drs. Battle, E. L. Morgan, McCormick, Woodward, Wood, Muncaster, Chappell and I. S. Stone. See page 185.

**Wednesday, April 22.**—The President, Dr. Kober, in the chair ; over 55 members present.

The Librarian of the Society was requested to secure and hold in the Library at least one copy of each publication printed with the authority of the Society ; and he should hereafter secure and hold in the Library one or more copies of each of the publications printed under the auspices of the Society.

The Treasurer was granted an appropriation of \$82.17 to pay for the publication of the last number of the ANNALS.

Dr. I. S. Stone presented a case and specimen : Excision of the caecum for sarcoma in a woman who had had symptoms of appendicitis. Discussed by Dr. J. Ford Thompson. See page 201.

Dr. H. W. Wiley addressed the Society on "The Adulteration of drugs." Discussed by Drs. A. F. A. King, Kober, Reisinger, Butler, F. P. Morgan and Jung. See page 205.

A vote of thanks was extended to Dr. Wiley for his able and instructive address.

**Wednesday, April 29.**—The President, Dr. Kober, in the chair ; over 66 members present.

Dr. Vaughan presented two specimens : 1. Cancer of the pylorus. 2. Gangrenous intestine. Discussed by Drs. Behrend, Bovée and J. Ford Thompson. See page 249.

Dr. I. S. Stone exhibited a patient on whom he had performed gastro-enterostomy for cancer of the pylorus. See page 249.

Drs. deSchweinitz and Salmon read papers upon Tuberculosis. Discussed by Drs. Woodward, Kober and S. S. Adams. See pages 229 and 235. The Society ordered a vote of thanks to Drs. deSchweinitz and Salmon.

Dr. Sprigg presented a report from the committee on the Walker-Gordon Milk Laboratory, which was accepted, and the recommendation adopted. See page 267.



## Medical Miscellany.

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**Central Dispensary and Emergency Hospital.**—During the fiscal year ending June 30, 1903, there were 7,941 new cases registered in the Dispensary Department and 5,620 in the Emergency Department; 794 patients were admitted to the wards and 3,256 operations were performed. There were 38,513 prescriptions compounded and the ambulance answered to 1,947 calls. The deaths were 75. The assistants are busy making out the usual detailed reports for submission to the Board. At the last meeting of the Staff Dr. C. S. White was unanimously elected to the position of permanent resident physician. He will enter upon his duties in September.

SWAN M. BURNETT.

**Providence Hospital.**—The new building which has been under construction is now finished and occupied. It contains upward of 100 private rooms and laboratories; also an operating room intended to be used only for private cases, and which has every modern convenience; but at present, during the renovation of the old hospital buildings, the new operating room will be used for all surgical purposes. The grounds surrounding the hospital are being improved to suit the new style of architecture, and within a short time the main entrance to the hospital will be finished. At present a temporary entrance is in use. Workmen are now engaged in remodeling the old hospital building, inside and out, and when finished it will conform in general appearance and internal arrangement to the new wing just completed.

T. N. VINCENT.

**Health Department, District of Columbia.**—**TYPHOID FEVER.**—The number of cases of typhoid fever under treatment in the city shows a marked increase during June and July. June 1, there were 86 cases under treatment, while July 31, there were 158. Between and including the dates mentioned 182 new cases were reported, 130 white and 52 colored. The number of cases reported during June and July of the current year was 4 more than were reported during the corresponding period of last year. As indicating to a certain extent the type of the disease, it may be stated that out of the 59 cases reported in June, 8, equivalent to 13.56 per cent., have died. In 1902, out of the 178 cases reported during June and July 31, or 17.41 per cent., proved fatal. It is, of course, too early to speak of the percentage of deaths among the cases which have been reported during the month of July.

SCARLET FEVER.—Only 9 cases of scarlet fever were reported during June and July and there were no deaths. All the patients were white. July 31, there was but one case under treatment. The number of cases of this disease reported during June and July, 1902, was 31.

DIPHTHERIA.—The total number of cases of diphtheria reported during June and July was 14, of which 10 were white and 4 colored. There were 2 deaths, 1 white and 1 colored. The number of cases under treatment July 31 was 4. During the corresponding period of last year the number of cases reported was 37, of which 7 proved fatal.

SMALLPOX.—Seven cases of smallpox were reported, 6 white and 1 colored, with no deaths. The number of cases under treatment July 31 was 2. The number of cases reported during June and July, 1902, was 11.

DIARRHOEAL DISEASES OF INFANCY.—The Health Department has recently been inquiring into the diet of children under two years of age who have died of diarrhoeal diseases. Between June 23 and July 31, 107 deaths occurred and have been thus investigated, 45 of the decedents being white and 62 colored. Ninety of these children, up to the time of appearance of the fatal diarrhoeal attack, had been fed exclusively on food other than mothers' milk; 6 had been fed partly by artificial foods and partly at the breast, while 11 were said to have been nursed only at the breast. Of the artificially fed infants, 45 were fed on supposedly fresh cows' milk, prepared in various ways; 43 on condensed milk, and 2 on so-called artificial foods. Investigation disclosed the fact that bottles and nipples were generally well cared for. The sanitary conditions among which these infants had lived were, however, far from satisfactory. In this connection it is interesting to note the statement recently made by Winter that during the siege at Paris, 1870-71, while the general mortality was doubled, that of infants was lowered 40 per cent. owing to mothers being compelled to suckle their infants.

REGISTRATION OF PHYSICIANS, &c.—The following physicians having been examined and found qualified to practice medicine in the District of Columbia, have been duly licensed:

Doctors Sidney Behrend, John W. Gaven, Wilbur H. R. Brandenburg, Giles B. Cook, Elmore E. Butterfield, Robert S. Trimble, Anna Bartsch, Rebecca Stoneroad, James G. McKay, Joseph A. Starr, William S. Manning, Louise T. Jones, E. G. Lascot, William J. Mallory, Bernard H. Harrison, Lewis H. Taylor, Robert J. McAdory, Eric A. Abernethy, Dwight G. Smith, Harry H. Donnally, Edward S. Lupton, H. I. Silvers, W. T. Hilliard, Jr.

Mrs. Bell Harkum has been examined to determine her qualifications to practice midwifery and as the result of such examination has been authorized to engage in such practice.

By virtue of registration at the Health Office prior to June 3, 1896, and without examination, Dr. Alfred Lord Gotwols has been licensed to practice medicine and Emma Randall to practice midwifery.

**MEDICAL INSPECTORS OF SCHOOLS AND PHYSICIANS TO THE POOR.**—The Commissioners have just received a report from the United States Civil Service Commission, showing the results of the examinations recently held to determine the qualifications of applicants for appointments as medical inspectors of public schools and physicians to the poor. The passing mark was 75. Twenty-two physicians were examined for appointment as medical inspectors of public schools. Of these six passed, as follows: Wilfred M. Barton, Thomas A. Groover, Wallace Johnson, Francis P. Morgan, John B. Nichols, John D. Thomas.

Eleven physicians were examined for appointment as physicians to the poor, of whom the following were successful: Truman Abbe, Richard S. Blackburn, John P. Gunion, Elliott C. Prentiss, Albert Ridgeley, Joseph D. Rogers.

The law requires that four of the appointees to the medical inspectorships shall be colored, and it is desired by the Commissioners that at least one of the twelve inspectors to be appointed be a woman. In view of the fact that no colored physician and no woman physician passed, the Health Officer has recommended that the Civil Service Commission be asked to hold another examination. This examination will be not only for the purpose of securing colored and women physicians, but also for the purpose of establishing a register of eligibles for use if necessary in connection with other appointments during the coming year.—W. C. WOODWARD.





# WASHINGTON MEDICAL ANNALS

## RHEUMATOID ARTHRITIS.\*

By FRANCIS B. BISHOP, M. D.,

Washington, D. C.

A progressive disease of the nervous system due to faulty metabolism, affecting primarily the centers and nerves that exert a trophic influence upon the tissues of the body, and is characterized in the early stages by a torpid condition of the entire muscular system, a general feeling of fatigue, a sense of soreness, pain and stiffness of the extremities, especially of the fingers, wrists, knees and ankles; followed later by febrile attacks of greater or less severity, each attack leaving in its wake some deformity, until very often we find the patient in the chronic stage, deformed in nearly every joint, with changes in the cartilages and synovial membranes, muscles wasted, limbs fixed in flexion, and suffering great agony; with a degree of helplessness proportioned to the stage and severity of the disease.

You will be spared the trouble of following me through the various chronic stages of this disease, they having been discussed in a former paper. Your attention will be called to the early stages of what you have perhaps already noticed has been designated as a disease of the nervous system. The writer makes no claim to priority in defining this as a nervous disease, but can come to no other conclusion, after a careful study of its onset, progress and course. In the first stages, often during childhood, the symptoms make their appearance in the same joints and muscles on opposite sides of the body; sometimes first on one side, to be followed shortly in the same member on the other side; frequently they appear simultaneously on both sides. The attacks come on in paroxysms of pain, some tenderness, stiffness of the muscles and joints, followed by relief for a time, but this is hardly

\* Read before the Medical Society of the District of Columbia, May 27, 1903.

ever complete. These symptoms are preceded or followed by digestive disturbances, the patient showing symptoms of anemia and emaciation. Each attack reduces his resisting power, and each time leaves him more helpless, until he gradually passes into the chronic and deformed state in which we so often find him. Or, perhaps, the patient may go for years with only slight discomfort, and break down suddenly, as a result of some nervous shock or after some acute disease, which may assume the form of what has been generally known as rheumatic fever. In any event, the trophic disturbances are well marked, in the wasting of the muscles, the changes (often amounting to destruction) in the cartilages and in the synovial membranes, the loss of tone in the skin and ankylosis of the joints.

What is true in the beginning is true in the end; when one muscle or set of muscles is wasted on one side, we find pretty much the same condition in the same muscle or set of muscles on the other side, showing that the centers, exerting a trophic influence over these muscles and joints, are primarily involved, and that the symptoms, as we see them, are merely manifestations of a deep-seated nervous disease. That nerves exercise a trophic influence over muscles, bloodvessels, bone, the viscera and other tissues is generally conceded, but whether there is a special set of trophic nerves having their individual centers and fibers, or whether the trophic influence is exerted by cells in the anterior cornua or through the sympathetic ganglia, the writer is not prepared to say, but is inclined to the belief that the function of nutrition is exercised by the vaso-motor nerves through the direct influence of the sympathetic. The close relation of these two systems of nerves and the close association of their spinal centers with the cells of the grey matter of the anterior horns of the cord, has led him to this belief. \*The vaso-motor center lies in the grey matter of the floor of the fourth ventricle; the vaso-motor nerves travel down the lateral column of the spinal cord and terminate by arborising around the cells of the grey matter of the subsidiary vaso-motor centers. From these cells fresh axis-cylinder processes originate, which pass out as the small medullated nerve fibers in the anterior roots of the spinal nerves. The vaso-constrictor nerves for the whole body leave the spinal cord by the anterior roots of the spinal nerves from the second thoracic to the second

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\* Kirkes' Hand Book of Physiology.



lumbar, both inclusive. They leave the roots by the white rami communicantes, and pass into the ganglia of the sympathetic chain, which lies on each side, along the front of the vertebral column. Here are situated cell stations on the course of the vaso-constrictor nerves for the head, trunk and limbs. The small medullated nerve fibers terminate by arborising around the cells of these ganglia, and a fresh relay of axis-cylinder processes from these cells carries on the impulses.

The vaso-dilator nerves pass through these ganglia, but do not communicate with cell stations in this sympathetic chain; they retain their medullary sheath and have their cell stations in the collateral ganglia (such as the semilunar) or in the terminal ganglia, on the walls of the blood vessels themselves.

This simply shows that there is an intimate anatomic relation, and perhaps associated physiologic function, between these three great systems of nerves, and it seems reasonable to imply that they have more or less influence over nutrition. Therefore, as the disease under discussion is characterized by faulty nutrition or lack of nutrition in the early stages, we must naturally seek repair by an effort to stimulate to action those centers through which the trophic influence is transmitted.

An early diagnosis is very important as, in all chronic curable diseases, the sooner a diagnosis can be made and proper treatment instituted the more certain and perfect the cure.

The following case came under my care, from the State of Maryland, in a very advanced stage of the disease. The history will be given to show how early in life the disease often begins and how slowly and progressively it marches on. This case has been reported before, and is now used on account of its perfect early history.

Mrs. X., when eight or nine years of age, suffered with pains in the limbs and back; these were thought to be growing pains. No special treatment was deemed necessary; it was suggested best to wait and let nature assert itself. When about fifteen the joints commenced to enlarge. Her physician prescribed different rheumatic remedies without any benefit to the patient. At this time stomach trouble was added to her other discomforts, and which she attributed to the medicine prescribed. She had several attacks of the grippe; after each attack she said her rheumatism grew worse until finally every joint in her body was

affected; her hands were so drawn as to be closed, arms were quite crooked and knees bent. Her case was pronounced incurable and she was told to do all she could to make life comfortable. She was very much emaciated, the extensor muscles generally in a relaxed and wasted condition, and when coming under my care was 37 years old.

We find that at eight or nine years of age this patient began to suffer with pains in her back and limbs; no doubt she had other indications of approaching disease even earlier and which were passed by unnoticed. At or about the age of fifteen, or about the time that nature demands of the female all the nervous and nutrition energy at her command to bring about those physical changes which distinguish the woman from the girl, we find that the joints commenced to enlarge and stomach trouble began. From this time on she grew steadily worse until, at the age of 37, she was deformed in nearly all the joints, with hands drawn in claw shape, elbows and knees bent, joints stiffened, jaws fixed to such a degree that it seemed surprising that she could get enough food in her mouth to sustain life. This patient was quite delicate as a child, caring very little for really nutritious food, but ate largely of pastries, candies, pickles and sweets of all kinds.

If you will kindly follow me through the composition of nerves and muscles, I think that we may find good cause for this wonderful trophic disturbance, not only in this case, but in many similar ones. The nerves, according to Kirkes, are composed of water in large quantity. Of the solids, one-half are proteids in the grey matter and one-third in the white matter. Muscles contain 75 per cent. of water, 25 per cent. of solids; of this 25 per cent. of solids, 18 per cent. are proteids. Therefore, as it is necessary to maintain metabolism of the body in a state of equilibrium, and as this can be done only by furnishing the body with food necessary to its perfect nutrition, it is easy to see why a growing child, deprived of proteids, should have starved nerves as well as a depraved muscular system.

Again, a predisposition to this disease may be inherited. The writer is quite familiar with the circumstances in the family of a very successful business man, a flour merchant and miller. The father, one daughter, one son and a grand-daughter have died with what has been called rheumatism, but today would be known as rheumatoid arthritis. The daughter was confined to her bed

for over 40 years, and for many years before death her knees and chin were drawn together; every joint in her body ankylosed; she was blind and deaf. A son, now living at the age of 50, moves about with difficulty. The mother and two daughters seem to be exempt. The mother is still living and is over 90 years of age.

Either in the acquired or inherited tendency, the patient may live for a number of years and break down when the nervous system is subjected to some unusual strain.

In the female, the first changing period of life will often precipitate an attack and bring to light for the first time the true nature of the disease, or this period of life is often passed in safety and the disease comes on in full force during or after a confinement.

Some of the cases we are called upon to diagnose early, in the adult, are in women, who either have never borne children or have successfully passed through the child-bearing period. Here at, or just before, the last great change in their lives, the nerve energy begins to flag; we notice symptoms of faulty metabolism; they complain of stiffness in the joints, especially at night, when pain is very pronounced. In the morning a general lethargy, an indisposition to take exercise, always tired, muscles weak, sometimes with nodes on the finger joints, pain and stiffness in the toes; even at this stage there is a tendency for the flexor muscles to draw. These patients are usually in good flesh and sometimes uncomfortably fat. But we must remember that a person may be very stout and yet be starving for proteids.

We may notice all through the history of this disease from one extreme of life to the other, that it is usually bilateral and manifests its greatest energy in one of the three periods of a woman's life in which her nerve centers are put to the greatest possible test in maintaining perfect nerve stamina.

Before taking up the subject of treatment, it will be well to inquire somewhat into the physiology and composition of that most important of all the fluids of the body, from a metabolic point of view, the lymph:

As the blood circulates through the capillary blood vessels, some of its liquid constituent exudes through the thin walls of these vessels, carrying nutriment to the tissue elements. This exudation is called lymph; it receives from the tissues the products of



their activity and is collected by lymph channels which converge to the lymphatic ducts. Lymph comes into much more intimate relationship with metabolic processes in the tissues than the blood. The spleen is the only organ where the blood comes into actual contact with the elements of the tissues. Lymph is similar in composition to blood plasma; it contains six per cent. of solids, more than one-half of which are proteids.

The blood plasma contains of solids about 97 parts per thousand; of this amount there is about 82 per cent. of proteids. Thus we see that all the tissues of the body, fluid and solid, most actively engaged in carrying on the process of metabolism seem to depend very largely for their activity upon nitrogen. Hence in a chronic tissue-destroying disease, like the one under consideration, it seems a reasonable proposition that food rich in this element should be given to these patients freely and frequently. They should be instructed to drink freely of pure water. They should, as far as practicable, be deprived of starchy food, sweets and to a large degree fats.

Cold baths and too frequent bathing should not be allowed; the first takes away too much body heat, and too frequent hot baths tend to exhaustion. Bathing in tepid water sufficiently often to keep the body clean is all that is necessary.

Medicine can do but little good and tends to increase stomach disorder. An occasional hepatic stimulant, however, is advisable.

Exercise in the open air should be encouraged, but not to the point of fatigue.

Of all therapeutic measures up to the present time, none have produced as good results as electricity when administered with a due consideration of the temperament of the patient, with a clear idea as to the changes to be brought about and the knowledge of the nerve centers that it is necessary to influence and the kind and degree of current that will best stimulate these centers to produce the desired results. This can best be obtained, according to the experience of the writer, by a stimulation of the centers already referred to in this article, which occupy a position on each side, in front of the spinal cord.

When a mixed nerve is subjected to inductive shocks, at the rate of one per second, the vaso-dilators are stimulated and the parts supplied thereby are suffused with blood; this causes an exudation of lymph through the capillaries, bathes and feeds the

parts, in other words increases metabolism; and in the joints, where the cartilage has no blood or nerve supply and is depending altogether for nutriment upon the lymph, this becomes a matter of great importance.

It has furthermore been proved by Drechel (Kirkes' Physiology) that the experiments outside the body which most closely imitate those occurring within the body, are those in which strong alternating currents were passed through solutions of proteid-like materials. Their effects are a rapidly changing series of small oxidations and reductions, and are analogous to metabolic processes; under such circumstances the carbon atoms are burnt off as carbon dioxide, the nitrogen being split off in the form of ammonia, and by the union of these two substances ammonium carbonate is formed. In addition to a carefully regulated diet, the writer has for a long time treated these early cases of rheumatoid arthritis upon the general physiologic principles outlined.

The patient reclines upon a flat couch with arms and hands either hanging over the side or lying by his side, the whole muscular system is as thoroughly relaxed as it is possible to get it. An electrode, made for the purpose, is pressed between the vertebrae on each side and a surging high-potential alternating current is administered; the time and length of the waves are measured to suit each case, from one to ten pulsations per second. As the joints and muscles of the four extremities are involved, I go carefully over the whole range of ganglia on each side five or six times; after this the liver is treated, the region of the kidneys and the spleen, the lymphatic vessels and glands as well as the joints. One peculiarity about this surging current, alternating in character, is that it produces a very efficient and deeply penetrating spark that is practically painless; the hand placed upon the knee, the spark may be sent through any part of the hand and be felt to enter the knee and still not produce pain. These treatments should be given daily until a decided improvement takes place. The first intimation of improvement will often come from the patients. They nearly always feel better after treatment. The improvement is gradual and progressive, but even in the early stages of the disease months will be required to bring about a cure.

My object in writing this paper is to show the necessity of early diagnosis in these cases. To show that impaired nutrition is pri-

marially the cause of trophic changes, first, in the nerve center, second, in the nerves, and third, in the muscles and joints. That these changes are brought about, in many cases, at least, by lack of sufficient amount of proteids in the daily food supply. And, last but not least, that any treatment to be successful, must be based upon a knowledge of the decaying physiological functions and the best means of aiding nature in restoring them to the normal. If I have even partially succeeded, or if I have succeeded in awakening a thought in the minds of any of you, though widely divergent from the theories outlined here, that will bring forth one physiologic or therapeutic fact that will bear the test of time, I am amply repaid.

**Dr. J. B. Nichols** expressed appreciation of the paper. The theory that the affection was infectious had not yet been corroborated. It must be ascribed to abnormality of metabolism or nervous influences or both. Perhaps one was dependent on the other. The association of joint lesions with affections of the nerves had been demonstrated beyond question; as an illustration might be mentioned Charcot's tabetic arthropathy. The theory was interesting, and it was possible that treatment along this line might prove effective.

**Dr. C. H. A. Kleinschmidt** agreed with the essayist that trophic nerves, as such, had never been demonstrated. The lesions in rheumatic arthritis were due to nutritive changes of a katabolic breaking-down character which depended upon disturbance of the functions of the vascular nerves. Even the accumulation of much fat, in chronic cases, was pathological, and the result of katabolism, the fat being of no use whatever.

He did not doubt that incipient cases could be benefitted by electricity, but the electricity could not act upon the trophic nerves specifically, as there were no such nerves. It took months to cure even an incipient case by electricity. The patience exhibited by some of these patients was remarkable. He knew an unusually severe case; the flexors were involved, but not the muscles of the face; the patient's limbs were drawn out of shape, his body was bent, and he could not perform many of the acts necessary for ordinary comfort, yet he was one of the most cheerful men Dr. Kleinschmidt had ever seen, and with his pipe enjoyed life.

**Dr. S. S. Adams** was gratified at the results of the use of electricity, reported by Dr. Bishop. It would seem, however, that while the dilatation of the vessels must have a beneficial effect upon nutrition, and some effect was better than none, yet the effect would hardly be lasting because of the brevity of the seances. He asked for information on this point. One disadvan-



tage which the physician must contend with in managing these cases was the scepticism engendered in the patients by their previous experience with various methods of treatment. It was a difficult matter to make a diagnosis of rheumatoid arthritis in its early stages, at the very time when treatment could do most good. He deprecated the common practice of ascribing joint pains in children to "growing pains." After marked anatomical changes had occurred, the diagnosis was, of course, easily made out. The mere presence of nodes was, however, not pathognomonic; he had treated many patients 30 years of age and upward, who had nodes of gouty or rheumatic origin, but which were not of a rheumatoid character. In order to present convincing proof, Dr. Bishop should report a series of cases in which he had stopped the progress of the disease, relaxed the fixation, etc. Dr. Adams knew of no permanent help for these patients.

**Dr. Kleinschmidt** pointed out that it was a mistake to speak of increasing the blood supply of a part by stimulating the vaso-motor (vaso-constrictor) nerves. The effect of stimulation was to cause contraction of the arterioles: to increase the blood supply it was necessary to dilate them, and this was done by stimulating the vaso-dilators.

**Dr. Vale** said that he was much interested in the paper, particularly as to the kind of current used. Three years ago Dr. Morton, of New York, was very enthusiastic over the results obtained in this disease by the use of the "wave current" which he introduced into electro-therapeutics and which justly bears his name. The French, who introduced currents of high tension and high frequency into therapeutics, constantly refer to this "wave current" of Dr. Morton as in that category. He asked Dr. Bishop to describe in detail the current he spoke of and its method of application.

**Dr. G. N. Acker** said that unfortunately he had had several of these cases. One patient could move only the fingers. He was glad that Dr. Bishop offered a method of treatment, as he himself knew of none. Like Dr. Adams, he could not see how the seances could have any permanent effect, because they were so brief. The diet could be regulated to good advantage in the early stages, but unfortunately the disease was hard to make out at this time. He hoped that the method of treatment described by Dr. Bishop would prove successful.

**Dr. Kleinschmidt** stated that some weeks ago he treated an old gentleman for bronchial catarrh. His right hand and arm were absolutely fixed. Dr. Kleinschmidt treated the catarrh, and incidentally gave elixir manaca and salicylates (P. D. & Co.); the next day he could move his hand and arm all right. Last week he saw a lady who could not move a limb; he gave her the same preparation, and the next morning she was ready to come down stairs. He gave it to a third patient a few days ago, and

she was now nearly well. These were facts. The medicine did not disturb the stomach in the least.

**Dr. Acker** called attention to another prescription which was said always to cure these cases. It consisted of fluid extract of taraxacum, salicylic acid, and liquor ammonii acetatis.

**Dr. Kober** asked whether any difference had been observed when animal proteids and when vegetable proteids were administered. Experiments in the Prussian army had shown that the best diet for a healthy individual was that in which two-thirds of the proteids were vegetable and the rest of animal origin. The old idea that an exclusively animal diet caused diseases of the uro-poetic system appeared to be sustained by experience. What proportion of the proteids taken by these patients should be vegetable and what proportion animal appeared to be a question of great practical value.

**Dr. Bishop**, in closing the discussion, said, that the terms anabolism and katabolism were spoken of in his paper as metabolism; a consideration of tissue waste and tissue repair separately would necessarily have made his paper much longer.

He did not claim to stimulate trophic nerves, as was clearly stated in the paper; he did not believe that it was definitely known what set of nerves produced trophic effects, but experience had taught him that when the ganglia of the sympathetic which formed a chain on each side of the front of the vertebral column were stimulated, nutritional effects were produced in the extremities.

In answer to Dr. S. S. Adams, he said that when nature was given a chance the general tendency of disease was toward cure. Now, if we could by proper food, supply the system with what it needed in the way of nourishment and stimulate the devitalized nutritional centers to increased activity, there was no reason why nutrition should not be established and permanently remain.

The subject of the history of the case reported in the paper was almost a confirmed cripple, and he regretted that he neglected to bring reprints showing cuts of the hands and arms before and after treatment in this case. The patient had not seen inside of her left hand for eleven years, the right hand was as bad, but not quite so useless. She could not get her hands to her head. She walked with great difficulty. Now she went when and where she pleased, combed and washed her hair, opened and shut her hands and suffered no pain. The hands, of course, were still deformed, but she could use them quite readily.

[Dr. Bishop mentioned other cases that had been cured.]

He admitted that the diagnosis in the early stages was sometimes difficult, but with the care that should be given to all cases, it ought to be made.

In the female it usually began in one of the three great periods of her life: the first change or beginning of the menses,

child-bearing period, or at the menopause. In the male, the period of election was not so well marked nor was the disease as common as in the female.

Numbness and pain in the arms or legs, hands or feet, was at first and for a long time complained of by the patient, with a tendency to stiffness at times, especially in the smaller joints, and was bilateral. The salicylates did no good. Many of these patients, on account of the condition of the stomach, consulted stomach specialists, and some of these cases had been referred by these specialists to him.

A long course of treatment, extending over months and sometimes years, was necessary for a cure. [He mentioned the case of a lady about ready to be discharged as cured; she was about 42 years old and had been under treatment for over a year.]

Nodes on the fingers and knuckles were not a pathognomonic symptom; he had seen very few cases with nodes. They were more apt to be gouty.

He believed, with Dr. Acker, that we would find very few intelligent physicians of today ascribing children's disorders to growing pains. However, twenty-five or thirty years ago this was not the case; children were often told, and their parents too, that the child only had growing pains, or that they need not worry, that the child would outgrow the pain.

He wished to state emphatically that these cases were not altogether desirable at any stage, and, in order to get good results, it required hard and persistent work on the part of the physician and much confidence on the part of the patient.

In answer to Dr. Vale, he said that the current he referred to was not what was described as a "wave current." It was an alternating current, and it could be obtained through an induction coil and leyden jars. In answer to Dr. Kober's question, he said that he administered lean beef; it was easily obtained and easily digested. These patients were starving for proteid food, hence he gave it to them in quantity, with plenty of water.



CASE OF ENUCLEATION OF EYEBALL WHICH HAD BEEN INJURED BY A PIECE OF STEEL PENETRATING THE EYE AND CAUSING SYMPATHETIC IRRITATION.—IMPLANTATION OF GOLD BALL IN TENON'S CAPSULE.\*

By E. OLIVER BELT, M. D.,

Washington, D. C.

J. E., age 46, white man, expert mechanic at U. S. Navy Yard, Washington, came to my office October 9, 1902, having been struck in the left eye a few hours earlier by a piece of steel which had been knocked off a large bar of steel by a heavy hammer. It had penetrated the upper lid and entered the sclerotic  $\frac{1}{8}$  inch from the temporal margin of the cornea, making an opening of at least  $\frac{1}{4}$  inch in diameter. There was light perception only; the pupil was round, of moderate size, and immobile. With the ophthalmoscope there was no fundus reflex. He was sent immediately to the Episcopal Eye, Ear and Throat Hospital, where a few hours later, under cocaine, a magnet  $\frac{3}{16}$  inch in diameter was inserted in various directions  $\frac{3}{4}$  of an inch. No trace of the steel could be found. It was thought probable that the lid through which it had passed had dislodged the steel, and that it had fallen out. The conjunctiva was sutured over the wound, and the eye closed by compress and bandage. The following day there was much chemosis of the conjunctiva and swelling of the lids. The second day the conjunctiva was scarified, after which the chemosis gradually subsided, and in a week the patient could count fingers at six inches when held to the extreme temporal side. The wound healed nicely, and the patient left the hospital the 17th day after the accident, apparently well. November 14 the vision in the right eye was  $\frac{20}{30}$  with a manifest hypermetropia of  $+1D$ , which gave him normal vision. Two months later there were symptoms of sympathetic irritation in the right eye as shown by his presbyopia becoming apparent and his vision being reduced  $\frac{20}{40}$  with 25 hypermetropia of  $2D$  becoming manifest. He then required  $+3D$  for near work. I cautioned him that he should keep under my constant observation owing to danger to his good eye. He had been taking potassium iodide since leaving the hos-

\* Reported with specimen to the Medical Society of the District of Columbia, May 6, 1903.

pital to promote absorption of the exudation in the left eye. February 16, 1903, a cataract was noticed in the injured eye, and vision in that eye had been reduced to light perception. March 10 the cataract was mature and there was in that eye considerable ciliary congestion which he had noticed for a week. Atropia and boracic acid fomentations were ordered. There was not much improvement, and enucleation of the eye was recommended. March 27 the eye was removed, and a hollow gold ball was inserted in Tenon's capsule. The operation was performed, as usual, under chloroform, but as each rectus muscle was divided a catgut suture was passed through one side of the end of the tendon. When the enucleation was completed and the hemorrhage had ceased, the gold ball was inserted and the ends of the opposing recti muscles were brought together and sutured over the front of the ball. The conjunctiva was then brought together and sutured with silk, and the eye closed with compress and bandage. An ice bag was applied over this for 48 hours. There was little or no reaction; the wound healed nicely. The silk sutures were removed about the fifth day, and the patient left the hospital on the seventh. Upon removing the eye the piece of steel was found projecting through the back of the eye near the optic nerve, where it had lodged in the thick sclerotic on its way out. It is about  $\frac{3}{8}$  of an inch long, and perhaps half of it projects back of the eye, so firmly imbedded in the sclerotic that no magnet could have dislodged it. Since removal of the injured eye, all symptoms of irritation have subsided in the other eye, and now only 1.5D hypermetropia is manifest.

**Dr. Burnett** said that he had seen a case the previous Sunday which was somewhat similar to that reported by Dr. Belt. The injury was caused by a shot wound above the eye. He saw the woman twelve hours afterward. The eye was then swollen, disorganized and ruptured. The injury was received as follows: the woman was standing by a bed which had a high headboard; a pistol was discharged in an adjoining room, and the ball passed through the partition and headboard, and struck her on the side of the head. There was a small wound just above the eyebrow. In enucleating the eye he found in its interior a perfect bullet, the end being much flattened. The woman herself, however, and others as well, claimed that the bullet which caused the injury had been picked up from the floor of the room. The specimen was submitted for examination.

## CASE OF RENAL CALCULUS.\*

By A. A. SNYDER, M. D.,

Washington, D. C.

F. S., white, age 22, laborer ; has had gonorrhoea ; drinks some and smokes. Since the ninth year of his age has had attacks of pain in his back on the right side, lasting continuously half a day to a week ; of late they have become more severe and frequent. Vomiting and bloody urine during the attack ; amount of urine not influenced by the attack. Pain over right side on deep pressure. Urine : sp. gr. 1012, alkaline ; albumen and triple phosphates. Operation performed under ether May 16, 1903. The usual dorsal incision was made ; later it was found necessary to extend it to the crest of the ilium. The capsule was stripped up, and the kidney was opened on its convexity. In removing the stone a part was broken off, and the incision had to be enlarged to remove the fragment. The bleeding was frightful and uncontrollable for a time until the bleeding point was found and a ligature of fine catgut was applied. The kidney wound was then sewed up and the dorsal opening closed with drainage. No unfavorable symptoms have developed since the operation. That night he voluntarily passed bloody urine—24 ounces of urine were passed on the first day, 32 on the second, and 52 on the third.

**Dr. Vale** spoke with reference to the use of the X-ray in the diagnosis of renal calculi. Since the introduction of X-ray photography instances of this affection had become more and more frequent. The method had enabled us to recognize the disease, and thus had paved the way for operation. The first diagnosis of renal calculus by means of the X-ray was made in Washington in 1896, and the patient was subsequently operated on, confirming the diagnosis. Dr. Chas. Leonard reported 36 cases in which the diagnosis was made by the X-ray, and afterward confirmed by operation. The earlier instances were merely lucky shots.

Leonard reported 136 cases, in 36 of which a positive diagnosis was made ; in 100 it was negative, and in one case the diagnosis was afterward shown to be erroneous. He deduced the rule that if the ray could be so adjusted as to penetrate the tissues, but not the calculus, the latter would appear in the picture. Hence, inasmuch as kidney tissue was denser than muscle tissue, and less dense than a calculus, the presence of a calculus in the kidney could be definitely determined. The correctness of Leonard's rule

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\* Reported with specimen to the Medical Society of the District of Columbia, May 20, 1903.



had been proven by many observers. A negative diagnosis could be made as correctly as a positive diagnosis. Sometimes when a satisfactory print could not be made, the presence of a calculus could be demonstrated from the plate.

The X-ray was invaluable, not only as an aid in making an early diagnosis, but also as showing the size of the stone, and the advisability of operating. It should be remembered, however, that the size of the object was exaggerated in the picture. The mortality from the operation was only two per cent. For purposes of diagnosis, a tube of low vacuum should be employed, but the current should be crowded, so as to use a great quantity; this was not possible with a static machine.

**Dr. I. S. Stone** said that Dr. Snyder was exceptionally fortunate in being able to get the kidney up out of the wound and ligate the vessels in the kidney substance. This had rarely been successfully done. Unfortunately, in this city the X-ray had not been of any great value as a diagnostic aid in these cases. In some instances the presence of the calculi had been demonstrated, and in others the method had utterly failed. When a stone was present the X-ray picture sometimes showed it, and sometimes it did not; hence the lack of confidence in the method as a diagnostic aid.

All his operations for renal calculi had been successful except one, in which he recently lost a patient, whether from over-confidence resulting from his previous success or not, he did not know. The patient was in excellent condition, apparently, and there was no reason to suspect an unfavorable termination. The diagnosis had been accurately made, without the aid of the X-ray. Dr. Stone was fully prepared for hemorrhage. He found the kidney so tightly adherent that it could not be raised from its bed; hence he determined to remove the stones by incision. He did so, removing 17.5 grams of them, but the hemorrhage was very profuse; all the calices had to be excised. He injected two quarts of normal salt solution into the median basilic vein, but the pulse failed and did not return. This was the first time in his experience that transfusion for hemorrhage failed to restore the pulse. He related the case, as he believed that failures, as well as successes, should be reported. Such accidents were liable to happen to any surgeon at any time. He congratulated Dr. Snyder on the happy outcome of his case.

**Dr. G. Brown Miller** said that he had been fortunate in seeing Dr. Leonard's work, which was excellent; he rarely failed in an attempt to determine the presence of a calculus or its exact position. It was the same with the X-ray as with the microscope: the ability to make a correct diagnosis depended not so much on the apparatus as on the man and his knowledge, and few men had the knowledge that Dr. Leonard had. Broedel, an investigator who was working up the blood supply of the kidney, had injected kidneys from many subjects of different ages, and had

found that the vessels of the organ occupied a relatively constant position. One noticed lobulations on the surface of the kidney. The depressed lines bounding these corresponded to the planes of connective tissue in which the larger blood vessels ran. These depressions were therefore to be avoided as much as possible in incising the kidney for the removal of a calculus. Broedel would soon publish the results of his investigations.

**Dr. Miller** had seen a number of operations for the removal of renal calculi, and, as a result, he did not favor the operation of splitting open the kidney in all cases. He had seen three patients die from hemorrhage, and he had been obliged in one case to remove the kidney after operation in order to save the patient's life. It should be remembered that even after hemorrhage from the organ had apparently been effectually controlled, bleeding might go on into the pelvis of the kidney and cause death. In certain cases it was easier and safer to remove the stone through an incision in the renal pelvis.

**Dr. Behrend** said that he had recently had under his care a very corpulent patient who was supposed to be suffering from renal calculus. Surgeons were called in consultation, but they discouraged operation. Suddenly, there was a complete suppression of urine from both kidneys. This case was interesting as illustrating how a calculus in one kidney might sometimes give rise to a suppression of urine in both organs. In such cases it would seem that an operation was imperatively demanded in order to save the life of the patient.

**Dr. Keech** said that he had recently seen a post mortem examination in a case of this kind. The patient was an old lady; the urine was at first normal in quantity, but later it was suppressed. At the autopsy, the left kidney was found completely disorganized; it contained eight or ten stones of the most curious forms. The right kidney contained not over three calculi. The stone which produced death stuck down in the pelvis, and could easily have been removed by operation. Anuria of both kidneys, when only one was apparently diseased, did not arise from mere sympathy.

**Dr. J. W. Bovée** said there were some things to be said for and against the value of the X-ray as an aid in making a diagnosis of renal calculus. Drs. Bevan and Keen were not as enthusiastic as formerly over the results of the X-ray diagnosis in these cases. Operation had not, in all cases, substantiated these results. Nevertheless, while not entirely satisfactory, the results were constantly improving.

One thing which would prevent the bringing of the kidney up out of the wound, if anything would, was adhesions; they should always be broken up before an incision was made in the kidney substance. If this was done, the organ would usually pop up out of the wound when pressure was properly made on the abdomen. The kidney incision must be made in the median line, and an as-

sistant must apply pressure so that no arterial blood could enter the kidney. Billings had shown that the circulation was bilaterally independent. The ureter should be carefully examined before the wound was closed.

He could not agree with Dr. Vale that an X-ray examination was necessary in every case, *e. g.*, in emergency cases. If the kidney was brought out through the incision, the subsequent work was done extra-abdominally, and the control of hemorrhage was easily accomplished. The pelvis also should be carefully scrutinized in order to see that no clot was left in it. For suturing, a round needle was best; it should be capable of carrying fully as large a thread as the puncture thus made. Over and over continuous sutures, in tiers were best. If this was done, drainage would be superfluous; there would also be no hemorrhage.

**Dr. Snyder**, in closing, said that he had used every known means to check the hemorrhage.

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## TWO CASES OF FRACTURE OF SKULL BY BASE-BALL BATS.\*

By A. A. SNYDER, M. D.,

Washington, D. C.

1. Boy; case referred to Dr. Snyder by Dr. Claytor. Examination disclosed a haematoma, and a small wound on the forehead; symptoms of cerebral pressure; an exploratory operation was performed and the haematoma evacuated; a depressed section of bone about the size of a quarter of a dollar was removed, and the edges were elevated. He remained in the hospital eleven days. Perfect recovery.

2. White youth. Three weeks ago a man struck him on the left temporal region. Pressure symptoms developed, and he was taken to the hospital. At the operation a fracture was found, running across the top of the head to the other ear; the bone was depressed and hemorrhage had occurred beneath the dura. The dura was opened and the blood withdrawn. When the bone was removed there was profuse hemorrhage, evidently from a torn sinus; this was packed for three days. The operation was completed without difficulty, and the patient made a good recovery.

It was unusual to meet with two such injuries within a year, and the cases showed the advantages of prompt operation.

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## CASE OF MYXOEDEMA IN A CHILD THREE YEARS OLD.\*

By G. N. ACKER, A. M., M. D.,

Washington, D. C.

The baby was normal until 18 months old. It then had a severe attack of diphtheria, and afterward began to fail. Has not talked or walked since the attack. Upper extremities also impaired. The skin became hard, thickened, and oedematous; the expression idiotic, and the child could not recognize its parents. Involuntary micturition. Bridge of nose depressed. When taken into hospital, the temperature was 101. One-half grain of thyroid extract, gradually increased to three and-a-half grains, was administered thrice daily. Improvement began about February 15, 1903. A little later the child had an attack of grippe, during which the dose of thyroid was decreased to one grain every other day. It now gets three grains thrice daily, and is steadily improving. The condition is in every way very much better than at first; she walks unsupported, the condition of the skin is improved, the expression bright and intelligent, etc. The thyroid gland could at no time be felt, and it cannot now. Small doses of the extract were given owing to the temperature and pulse, which were higher at times. The abdomen is still somewhat larger than normal. The weight has steadily increased; she now weighs 24 pounds.

**Dr. G. L. Magruder** endorsed the efficacy of thyroid extract in the treatment of myxoedema. Last spring a lady 22 years old, who was suffering from the disease, came to him for treatment. She had all the typical symptoms; she weighed 200 pounds; she could make no exertion without suffering from dyspnoea and cardiac palpitation; she was practically an invalid, and altogether her life was so miserable that she even went so far as to contemplate suicide. The effect of thyroid extract in this case was marvelous. She was given a 5-grain tablet three times daily, and was under treatment about three months. At the end of that time she had lost 20 pounds, she could take moderate exercise without discomfort, and enjoyed life. She had kept up the treatment during the past summer and winter and had steadily improved.

**Dr. J. Dudley Morgan** said that the case was a rare one and Dr. Acker deserved the thanks of the Society for presenting it

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\* Presented to the Medical Society of the District of Columbia, May 20, 1903.

and exhibiting the patient. There was nothing in therapeutics more remarkable than the effects of thyroid extract in myxoedema. The improvement usually began within a few weeks. He had treated four cases of the disease, all the patients being females; this last was in accordance with the general rule. Dr. Acker's case was interesting as showing the infectious cause.

**Dr. J. B. Nichols** inquired as to the weight of the child before and after thyroid was administered. Also, whether there was any acceleration of the pulse or cardiac complication.

**Dr. Barnes** said that four or five years ago he had treated three cases of cretinism, two of them being males. The rectal temperature of these two cases was 96 and 97 degrees Fahrenheit. The third case had a temperature of about 100 degrees Fahrenheit, with some enlargement of the thyroid which would seem to indicate that the little glandular tissue that was left was endeavoring to supply the demand for thyroid secretion. In the eldest of these cases the bones grew so rapidly that the child had to be taken off its feet to keep the bones from bending. Acting on this suggestion, he attempted to soften and then straighten the long bones in several cases of rachitis. This was attended with only partial success. For the last two years he had been observing the action of this drug in cases of mammary inactivity, and reported several cases where the administration of the remedy had restored the mammary function. Two of these cases had shown no mammary activity whatever.

**Dr. Acker** said that the child was of normal weight up to its 18th month; it then gained in weight until it was very large, but it was not weighed. After treatment was instituted it lost weight gradually and constantly until the administration of the thyroid had to be stopped. When too large doses were given, the loss of weight was too rapid, and the results were not so good. Here, the average dose was one grain. When the dose was increased the pulse rate increased. He was glad to hear Dr. Morgan say that in one of his cases the child probably recovered, as so favorable a termination was a marked exception to the general rule.

CASES OF EARLY CARCINOMATA AND FIBROMATA  
OF THE UTERUS; OVARIAN FIBROIDS, AND  
UMBILICAL HERNIA.\*

BY J. WESLEY BOVÉE, M. D.,

Washington, D. C.

Mrs. X., white, 52 years of age, mother of four children, the last one born 19 years ago; ceased menstruating in 1900. She came under my observation in December, 1902. Her mother died of cancer of the uterus at the age of 78 and her father of heart trouble at 63. She was suffering from backache and mitral regurgitation with irregular heart action. She had had four slight uterine hemorrhages since October 13, 1902, which together with her family history led her to seek advice. She was a very intelligent and philosophical woman and familiar with her family history. I found the cervix slightly eroded and the vagina narrow. The body of the uterus was slightly enlarged and irregular in outline. Vaginal hysterectomy was recommended on general principles and readily accepted. The operation was performed and the uterus found to contain a few very small fibroids in its body and the erosion of the cervix so slight as to have created little suspicion of carcinoma had the patient been some years younger. Dr. James Carroll reports the pathological finding in the case as being "adeno-carcinoma of the cervix uteri." Thus far there is no evidence of recurrence. Had the condition of the heart justified a very radical procedure it would have been done by the abdominal route. The operation was done upon general principles, without a positive diagnosis, and was justified by the pathological finding.

Dr. Bovée also presented a specimen of *fibroids of both ovaries, umbilical hernia and diastasis of the abdominal recti muscles* which he had removed from a colored woman—a widow—55 years of age, who had had four children. Her last confinement was 34 years ago, and her last menstruation 17 years ago. She had atheromatous arteries and a very large abdomen containing solid tumors and fluid. Upon opening the abdomen, fully two gallons of dark straw-colored fluid escaped, revealing an irregular mass, weighing three pounds, springing from the right ovary and adherent to the intestine, omentum and broad ligament. It was hard and white, irregular in outline and resembled a mass of

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\* Reported with specimens to the Medical Society of the District of Columbia, May 20, 1903.



subserous uterine fibroids. A part of this ovary about half the size of the normal organ appeared to be normal and seemed like an offshoot from the tumor. The left ovary was about normal in size, and, by means of strong filamentous adhesions, was attached to the surrounding parts. Both Fallopian tubes were normal. Both appendages with the uterus were removed with Downe's electro-thermic angiotribe. The vermiform appendix was bound down by light adhesions, and was removed by the same instrument. The incision in the abdominal wall was extended to reach from the symphysis pubis to the ensiform cartilage, encountering above the umbilicus several small cysts in the connective tissue which were excised with the sac of the umbilical hernia. The fascia on both sides was split and brought together in such manner as to properly remedy the wide separation of the muscles. The patient made a thorough recovery. Dr. Carroll's report upon this specimen was "double ovarian fibroids."

REMARKS.—The presence of a solid tumor floating in a considerable amount of ascitic fluid in a woman's abdomen is very suggestive of malignant or fibroid degeneration of an ovary. Ovarian fibroids are exceedingly rare, and still more rarely is the disease bilateral.

Dr. Bovée also presented a specimen of *multiple fibromata uteri* which had changed, by adhesions and pressure, the shape of the bladder to that of an hourglass. This specimen was removed from a colored woman 30 years of age, who had been married 14 years and had never been pregnant. She had some swelling of the right leg, and considerable pain in the lower part of the abdomen. During the past two weeks voiding of urine had been impossible, and emptying of the bowel very painful and difficult. The body of the uterus with the tumors, right appendage and vermiform appendix were removed. The tumor weighed about two pounds. The bladder extended to above the umbilicus, and catheterization of the patient on the operating table with the abdomen open failed to empty the portion of the bladder above the hourglass constriction. A considerable extra force exerted over the periphery of this sac was necessary to empty it. Fortunately, the bladder was not injured during the operation. The vermiform appendix was adherent two inches above the umbilicus and its end clubbed. It was removed. Two quarts salt solution were left in abdomen and one quart thrown into the rectum. Recovery followed. A point of particular interest in this case is the bladder complication.

## CLINICAL NOTES OF THREE CASES OF CAESAREAN SECTION AND TWO OF BASIOTRIPSY.\*

By HENRY D. FRY, M. D.,

Washington, D. C.

At the maternity service of Columbia Hospital a number of cases of difficult labor are met with due to minor degrees of pelvic contraction. These are usually terminated by forceps. In a few cases symphysiotomy has been resorted to. Our greatest mortality is from eclampsia and unsuccessful efforts at delivery before the cases are brought into the hospital. An average of 30 to 40 per cent. is in labor when admitted. Since July 1, 1902, to date, there have been 330 confinements with two maternal deaths; one the result of typhoid fever and one from eclampsia in a case of Caesarean section here reported. We have had no serious cases of puerperal sepsis for some years. The greatest advantage is shown to result from the use of rubber gloves in all examinations made. Before these came into universal practice we noticed grumbling temperatures whenever a new interne took charge of the service. It is a remarkable fact that during the last four months of the service we have had the opportunity to perform Caesarean section five times and basiotripsy twice.

Case 1. Puerperal eclampsia; contracted pelvis; Caesarean section. Olive J., colored, age 18, was admitted to hospital December 13, 1902, in a state of clonic convulsions of the whole body; the tongue was protruded and swollen and was caught between the teeth; pulse 160; respiration stertorous. One month before admission she had had three convulsions and severe headaches since that time. On the morning of admission she had a severe headache and soon afterward a convulsion. Has been unconscious ever since. Before bringing her to hospital she had eight convulsions and several occurred while being brought in the ambulance. She was chloroformed to control the attacks. By abdominal palpation the presentation was determined and the position made out L. O. A.; fetal heart sounds in left lower quadrant. Vaginal examination revealed a soft cervix very slightly, if any, dilated. Manual dilatation was begun by my colleague, Dr. Moran, and assistants. The forceps was applied, but failed.

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The head was above the inlet and movable. The true conjugate diameter was diminished; estimated at  $2\frac{3}{4}$  inches. A symphysiotomy was proposed and the patient was kept under the influence of morphia until removed to operating room at 8 P. M. Examination now revealed that all pelvic measurements were diminished. After consultation it was considered advisable to deliver by Caesarean section. The abdomen was opened in the median line, uterus lifted out, incised, and the child removed. The uterine wound was sewed up with deep kangaroo sutures and superficial catgut. The child was dead. The operation was completed in 35 minutes. Convulsions recurred and continued with profound coma until the woman died 36 hours after operation.

The autopsy showed the abdominal incision apparently normal, no peritonitis. Uterine incision apparently normal; uterus about 6 inches in length and 4 in diameter; cavity contained no blood.

Case 2. Basiotripsy. Daisy J., age 18, primipara, was brought to hospital January 17, 1903, about 6.30 P. M. Labor had been going on for five days, and severe efforts had been made to deliver by forceps. The perineum was torn and the child dead. The position was R. O. P.; the distance between the spines,  $8\frac{1}{2}$  inches; crest,  $9\frac{1}{2}$  inches; r. o. and l. o., each 8 inches; external conjugate, 6 inches; conjugata vera, estimated at 3 inches. The head was not engaged. The skull was perforated and the basiotribe applied. After crushing the skull the shoulders offered some resistance, and the tissues were so soft that the head nearly separated from the body. The child weighed 7 pounds, 2 ounces. The mother made a good recovery.

Case 3. Ventral fixation—Caesarean section. M. H., age 23. Admitted February 28, 1903. March 5, her pelvic measurements were taken and vaginal examination made. The measurements were about normal, and she gave a history of having given birth to two full-term children without any serious difficulty. Vaginal examination showed a soft cervix which was markedly anteflexed or rather pointed forward, as the angle of flexion seemed to be in the lower uterine segment just above the internal os. Inspection of abdomen revealed a scar of incision beginning about one-half inch above symphysis pubis and extending upward in the median line a distance of two inches. There seemed to be a considerable tension on this scar, and it was puckered as if being drawn from below. The abdomen was tense and the uterus hard, consequently



considerable difficulty was experienced in doing abdominal palpation. [In going over the records it was found that she had been operated on in this hospital July 29, 1901, by Dr. I. S. Stone, who did a curettage and ventro-suspension of the uterus.]

Labor pains began during the night of March 10. She was sent to the delivery ward, and vaginal examination made by the house physician, who found an undilated cervix pointing forward. The pains wore off and she slept comfortably the rest of the night. A few pains March 11. Heroin, grain one-twelfth, was administered hypodermically and she rested well that night. March 12 the pains were more severe; again sent to delivery ward and vaginal examination made. Same condition of cervix. Abdominal examination revealed a rigidly contracted uterus. Pains quite severe that night. On the morning of March 13 the house physician telephoned the attending obstetrician (Dr. H. D. Fry), who ordered morphia one-quarter grain hypodermically, and castor oil by the mouth. Bowels moved freely and urine voided without difficulty. She was examined in the afternoon by Drs. Fry, Sprigg and Moran. Uterus in a state of tetanic contraction, cervix undilated, marked angle of flexion in lower uterine segment. Caesarean section decided on and she was immediately prepared for operation. Pains at this time quite severe.

Operation begun 9.40 P. M. with pulse 70; and ended 10.15 P. M. (35 min.), pulse 120. An incision six inches long was made in median line. Fundus and anterior surface of uterus found adherent to abdominal wall by broad band of dense adhesions. The uterus was freed of adhesions and lifted out of abdominal cavity. Hot towels were placed behind to shut off abdominal cavity. Piece of rubber tubing placed loosely around cervix. Uterus then incised and a living child, placenta and membranes rapidly delivered. Cavity of uterus washed out with hot salt solution. Incision in uterus closed with interrupted kangaroo tendon, the sutures extending down to endometrium, and this row of sutures turned in by row of catgut sutures approximating the peritoneal surfaces of uterus. Abdominal incision closed with continuous catgut sutures for peritoneum and 15 silkwormgut sutures brought together the fascia and skin. The mother and child did well.

Case 4. Basiotripsy to the after-coming head. L. G., age 20, third labor. Two previous labors had been instrumental. Ad-

mitted in labor March 25, 1903. In the afternoon Dr. White made an attempt to apply high forceps to the unengaged head; failing in this he did an internal version and brought down a foot and leg, but found it impossible to deliver the child through the contracted pelvis. She was conveyed to the hospital in an ambulance. When admitted one fetal foot and leg protruded from vagina. Dr. Moran succeeded in delivering the body of the child. Both arms being extended over the head, were brought down with the blunt hook. The child was dead. It was impossible to bring the after-coming head through the pelvis without destructive operation. The head was extended in such a way that the occipital region was the most prominent part of the skull. Dr. Fry introduced the perforator at this point instead of under the chin. The two blades of the basiotribe were then put into position and the skull crushed. Delivery was then easily effected. The mother made a satisfactory recovery.

Case 5. Caesarean section. Justominor pelvis with rachitic deformity. M. H., age 20. Admitted April 14, 1903, in labor. Between spines 23 cm., crests 23 cm.; R. O. 19, L. O. 18; conj. ext. 16. Inspection revealed uterine tumor quite prominent and the pains were severe. Pelvic measurements showed generally contracted pelvis with rachitic deformity. Presenting parts unengaged. She was immediately prepared and transferred to gynecological operating room. Operation begun at 4.19 P. M. and ended 4.56 P. M. The usual incision was made in the median line, the uterus lifted out of the abdominal cavity and hot towels placed behind the uterus. Longitudinal incision made in anterior surface of uterus about five inches long, followed by escape of large amount of amniotic fluid. Fetus extracted one minute from commencing abdominal incision. Child dead. Uterus flushed out with hot normal salt solution and closed with deep kangaroo tendon interrupted sutures; and peritoneal cavity brought together with catgut. Abdominal incision closed with continuous catgut for peritoneum, with through-and-through silkworm gut sutures for skin, muscles and fascia. Patient made good recovery.

**Dr. Moran** said that he was fortunate in having seen the operations in all of Dr. Fry's cases with one exception. He commended Dr. Fry upon the results; all the patients had been in labor from 15 hours to three or four days. Considering the circumstances it was remarkable that he lost only one of the five. The lesson to

be learned from these cases was that women should be examined carefully during pregnancy; then, when labor comes on, the physician would know just what to expect and what to do. Caesarean section would in all probability gradually supplant the high-forceps operation and version in the great majority of cases. It was in the border-line cases that the method of treatment was hardest to determine, where the contraction was slight. He mentioned the case of a woman who had been in labor 18 hours with no progress whatever, and practically no dilatation of the cervix. The case was an admirable one for Caesarean section, and the operation was performed with good results: mother and child lived. The great majority of cases of dystocia occurred among negroes. Rachitis was a common cause of pelvic contraction; prolonged labor might also be due to an excessively hard fetal head.

**Dr. Castelli** regretted that he could not agree with Drs. Fry and Moran as to Caesarean section. The operation was rapidly falling into disuse, and it was only a matter of time when it would be discarded altogether. The conditions in which it was indicated were contraction of the pelvis to such an extent that normal delivery was impossible, and the presence of a hard tumor, like cancer of the cervix, etc. The consensus of opinion at the Medical Congress in Paris in 1891 was that Caesarean section was not justifiable in these cases; symphysiotomy was preferable. Five or six cm. of additional space could thus be gained, an increase in all the diameters of the pelvis; this rendered delivery possible in the vast majority of cases. If the contraction was in the oblique diameter, additional space was gained by cutting the pelvic bone on one side; this added room just as in symphysiotomy, and in the same proportion. Hence, why perform Caesarean section? The operation was inefficient, difficult of performance and attended with much danger.

From a sociological point of view, symphysiotomy was bound to take the place in obstetrics that the Bassini operation held in surgery. Rickets, the principal cause of deficient bony development, was the disease of the struggling classes in the same way that hernia was the manifestation of struggle in organisms of low resistance. As long as the poor and laboring classes furnished the majority of sickness, physicians must be more prepared where more needed. If we admitted that a physician ought to be able to perform always a Bassini operation, with more reason he ought to be always ready for a symphysiotomy, because he was called for in cases of great urgency, when his immediate action was necessary to save the life of the child. Modern obstetricians must begin to take into more consideration the life of the fetus, which, from the time of conception, had acquired the legal right to life. The life of a child must be saved in every possible instance, because such a life could be very useful. When we killed a child did we know if we were depriving the world of an idiot or of a second George Washington? Caesarean section



was unjustifiable in hard tumor of the pelvis, because the operation would have to be repeated at the next pregnancy; panhysterectomy was preferable. In the presence of carcinoma, operation was useless, because the patient was sure to die of sepsis.

**Dr. J. Taber Johnson** commended Drs. Fry and Moran for having saved their patients under such adverse circumstances. These operations were performed, however, as much to save the child's life as the mother's. Dr. Fry was unfortunate in not being able to operate in one case early enough to save the child's life. Caesarean section was a marvelous operation with our modern methods and instruments, and if the patient was seen early enough, and we could make a thorough examination and set the time for operation, Caesarean section gave as favorable a prognosis as operations for fibroids, etc. Hence it was a pity that Dr. Fry could not have operated earlier in the case referred to.

Dr. Johnson related an instance in which he performed the operation under the most adverse circumstances. The woman had been in labor three days; she lived in a miserable hovel, and a door on two chairs served for the operating table. Several operations had already been tried, and the patient died suddenly, ten days after he performed Caesarean section, from a perforation of the uterus which resulted from an injury caused by previous attempts at version. The Porro operation would have saved her life, as death was caused by sloughing of the necrosed spot in the uterus.

Dr. Smith and he had been the consulting obstetricians to Freedmen's Hospital for five years, and in that time they had met with five cases which necessitated this operation. Fortunately, they were able to make the necessary preparations for operation in each case, and perfect success both as to mother and child attended their efforts in all. He laid stress upon the point that if physicians would make it a habit to take the measurements of the pelvis in each of their new obstetrical cases fewer patients would be lost at the time of delivery. In one of the cases mentioned, a 14-pound fibroid caused the dystocia: panhysterectomy was performed by Dr. Williams. In another case the fetus was removed from a dwarf by Caesarean section. Subsequently, there was a second pregnancy and a Porro was performed; hence such individuals should be made sterile at the time of the first operation. Another, a dwarf, a girl 15 years old, was operated on by the Porro operation. In all these cases the time was appointed for the operations with the same deliberation as for ovariectomy. Finally, he wished to emphasize two points; first, while he congratulated Dr. Fry on having saved the mother's life, he commiserated him so far as the loss of the child was concerned; secondly, it was the duty of every physician to make a careful examination during pregnancy in every case, in order to determine whether contraction of the pelvis existed.

**Dr. S. S. Adams** spoke of two children who had come under his observation, both of whom had been delivered from the same mother by Caesarean section. When he asked the mother why she had not been rendered sterile, she replied that the operation was the easiest way to have children, under an anaesthetic.

**Dr. Fry**, in closing the discussion, said he was surprised to hear one of the speakers claim that Caesarean section was rapidly falling into disuse. His own opinion was that it was rapidly gaining ground, and that its indications were being recognized for the treatment of labor complicated by other conditions than contracted pelvis; for instance, eclampsia, placenta praevia, etc. Indeed, from the tone of some recent publications, one would suppose that its use was extending so rapidly that Caesarean section was advised for almost every condition except as a substitute for normal labor. The reason for this was, no doubt, the reduced mortality. Caesarean section, under favorable conditions, should not give a mortality greater than three to five per cent. The speaker referred to seemed to think that symphyseotomy was growing in popularity and would supplant Caesarean section. On the contrary, symphyseotomy seemed to be losing ground, and Caesarean section was being recommended in cases that were formerly treated by symphyseotomy. Dr. Fry believed that symphyseotomy was still a valuable operation in suitable cases, but he recognized that the indications for the operation were more limited.

Symphyseotomy was permissible when the antero-posterior diameter only was diminished as in ordinary rachitic pelvis. It was proper when the conjugate diameter was not reduced to less than three inches. In only a few instances in this country had it been effective when this diameter was  $2\frac{3}{4}$  inches. It might be possible to deliver a live child with this minor degree of contraction in Europe, because the average child there was smaller. In every one of the cases he had reported in this paper there was a justomino pelvis and in not one was delivery by symphyseotomy possible.

In regard to producing sterility in the mother, he thought it was better to take the chances of a second pregnancy. In case it was decided to do so he believed that the excision of a portion of the tube was a better method than the Porro operation. If there was any indication of infection of the uterus from previous efforts at delivery, the Porro operation would be indicated.

The main point in performing Caesarean section was to recognize the necessity of it early and not wait until the woman was exhausted or infected. Cases seen during the last month of pregnancy should be operated on before the beginning of labor or very soon afterward. In the cases he had reported he had made all haste to operate, and the death of the child was in no case due to any delay on that account.

CASE OF FIBROID TUMOR OF LEFT BROAD  
LIGAMENT.\*

By DUFF G. LEWIS, M. D.,

Washington, D. C.

I present a specimen of a large fibroid tumor of the left broad ligament of the uterus, weighing about 12 pounds, which was removed at the Roanoke City, Va., Hospital some three weeks ago by my brother, Dr. J. N. Lewis, and myself, from a white lady, age 38 years, who gave the following history:

Cases of carcinoma have occurred in her mother's family for several generations. Except for an attack of "brain fever" at 10 years of age, she has always been in very good health. She was married when 24 years old, and has given birth to three children, all of whom are living; the last was born three years ago. The first indications of her present trouble began about four or five years ago with pain in her left side, to which side it has always been confined; and the abdomen afterwards began to increase slowly in size.

There had been a rise of temperature and an increased pulse rate for several weeks previous to admission for operation, at which time there was a variation of temperature of 101 to 103 and 96 to 112 respectively.

Having suffered intensely and being in an extremely nervous condition, the patient was confined to bed for a week before operation.

I present this specimen to exemplify the size that these tumors may attain.

You will observe that it is pyriform in shape, the base, which *in situ* reached the umbilicus, being above. It occupied very snugly the whole pelvic cavity, having pushed the uterus and right tube and ovary high up on that side, as is very prettily shown. The left tube and round ligament traverse the upper surface of the tumor, while the left ovary is plainly in evidence at the summit.

These tumors are peculiarly interesting from the operator's standpoint, owing to the difficulties and dangers encountered in their removal. The three dangers are from possibilities of injury to the bladder, injury to the ureter and hemorrhage.

In this case the attachment of the bladder was rather high up

\* Reported with specimen to the Medical Society of the District of Columbia May 20, 1903.



and to the left on the anterior surface of the tumor and not to that of the uterus, which, as is seen, is same distance to the right of the median line and not enlarged. One has to be careful not to cut into this viscus in making his encircling incision. The proximity of the ureters to the lower portion of the growth requires great care to avoid injury thereto.

There is a condition present in this growth which should be of interest to those of our brothers who advocate delay in the removal of fibroid tumors in any location, namely, degeneration. Drs. I. S. Stone, J. T. Johnson, J. W. Bovée, and others have directed the attention of this Society on more than one occasion to this condition—the degeneration which fibroid tumors are prone to undergo. In the upper portion of this tumor the degenerative changes can plainly be seen, and they explain the high temperature and pulse rate the patient had previous to the operation.

From last report, received a few days ago, she was making an uninterrupted recovery.

**Dr. I. S. Stone** said that the specimen was one of the most interesting he had ever seen, on account of the anatomical relations of the tumor, its size, etc. He could readily appreciate the difficulty which attended its removal; it meant, practically, the excision of everything in the pelvis. He congratulated Dr. Lewis on the result which he had obtained.

**Dr. G. Brown Miller** said that he once had a similar case, but was not so fortunate as Dr. Lewis had been in the removal of the tumor. The fibroma apparently had its origin from the ramus of the pubic bone on the left side. The uterus, which was small, was pushed to the right and far back in the pelvis, and the bladder was stretched over the surface of the tumor. The blood supply of the latter was very great. In attempting to open the capsule of the tumor and thus shell it out, he accidentally passed the scissors into the bladder, making an opening three inches long. This accident helped him out of a difficulty, for he was now able, by passing catheters into the ureters, to determine their relation to the tumor. The latter was enucleated, the bladder sewed up, and, to prevent the blood from the oozing area, which could possibly be contaminated by leakage from the bladder, from flowing into the peritoneal cavity, the latter was shut off by sewing the round ligaments and the uterus to the anterior abdominal wall. The oozing was then controlled by a tampon. The woman made a good recovery.

**Dr. Lewis**, in closing the discussion, said that hemorrhage gave the most trouble in these cases: the vessels were much enlarged, and consequently were liable to give rise to profuse bleeding when they were cut.

## CASE OF CHOLELITHIASIS.\*

By A. A. SNYDER, M. D.,

Washington, D. C.

A colored man suffered from haematuria, incontinence of urine, and ascending pyelitis. Dr. Snyder performed a perineal operation a week ago, but the man died. At the autopsy he found the gallbladder much distended, and there was a calculus in the fundus. The gallbladder was bound down by adhesions and was not palpable even after the median incision had been made. Years ago, the man had symptoms of cholelithiasis. The specimen consisted of the gallbladder with stone *in situ*. Two much enlarged lymphatic nodules were found at the junction of the two ducts, and another farther down. This very interesting condition had been described by Murphy and Musser.

**Dr. Crosson** said that Dr. Snyder's case was like one he operated on the previous Sunday morning. The patient was a woman 32 years old, married, with two children. History indefinite: her mother died jaundiced at 32. About six months ago, the patient complained of pain in the right side. She was very rheumatic, and all pains disappeared after use of the salicylates. Two months afterward pain again appeared in right side which the salicylates promptly relieved. One month ago she said that she could feel a lump on right side beneath ribs, and on examination a growth was found, extending from the ribs downward to a point one-and-a-half inches above the level of the umbilicus. He made a diagnosis of malignant disease. Dr. Acker was called in consultation, and expectant treatment was instituted. At that time there was no pain, no history of gall stones, and digestion was unimpaired. The family was anxious that something more should be done, and at their request a second consultant, Dr. I. S. Stone, was called, and made a diagnosis of stone in the cystic duct. At the operation, Dr. Crosson found a perfect gallbladder, but on the anterior superior surface of the liver was a growth, the size of two fists, extending down to the umbilicus. With the assent of Dr. J. Taber Johnson, who was present, the abdomen was closed, nothing more being done.

The case was as interesting as if a calculus had been found, on account of the difficulty of making a correct diagnosis. In cholelithiasis there was not necessarily any history of pain or of gall stones. In this case, while the liver was not apparently enlarged, it was found at the operation to extend downward as far as the iliac crest. The patient improved.

\* Reported with specimen to the Medical Society of the District of Columbia May 27, 1903.

In answer to a question by Dr. Kelley, he said that the growth was evidently malignant: there was no evidence of syphilis.

**Dr. Kelley** said that he had operated on a similar case, and had sewed up the abdomen in the same way. Afterward he ordered potassium iodide, and the patient recovered absolutely, in spite of the fact that there were no symptoms of syphilis.

**Dr. Crosson** replied that he had given his patient a thorough course of anti-syphilitic treatment, but it had done no good.

**Dr. Bishop** suggested that in all cases of this kind, where the diagnosis was in doubt, an X-ray examination should be made. It would reveal the presence of gall stones in a number of cases in thin subjects.

**Dr. Snyder** said that Dr. Merrill, who did much X-ray work, had informed him that the rays were not serviceable in making a diagnosis of gall stones.

**Dr. Vale** said that if Dr. Bishop could photograph gall stones in every case, or in the majority of cases, he was to be congratulated. He and Dr. Carl Beck of New York were the only two to make such a claim. The leading radiographers of this country and Europe had failed to duplicate Beck's results. He asked Dr. Bishop to describe his technic. Dr. Beck recommended that the patient lie face down on the plate with the rays going in from the side so as to have the smallest amount of tissue possible to penetrate.

**Dr. Bishop** replied that all that was necessary was a knowledge of how to do it, and to do careful and thorough work. Gall stones stopped the rays like bone, bullets, and other solid bodies. A stout person was not a good subject. He described the technic used in securing a photograph.

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## EXCHANGES.

The following exchanges have been received. If others have been sent, they have not been received. Our publishing address is 618 F Street, N. W., Washington, D. C.

*Providence Medical Journal*, Providence, R. I. ; *Albany Medical Annals*, Albany, N. Y. ; *Buffalo Medical Journal*, Buffalo, N. Y. ; *New York State Journal of Medicine and American Gynecology*, New York City ; *Louisville Monthly Journal of Medicine and Surgery*, Louisville, Ky. ; *Journal of the Michigan State Medical Society*, Detroit, Mich. ; *Saint Louis Medical and Surgical Journal*, St. Louis, Mo. ; *Dallas Medical Journal*, Dallas, Texas ; *Pacific Medical Journal*, San Francisco, Cal. ; *California State Journal of Medicine*, San Francisco, Cal.



PROCEEDINGS OF THE MEDICAL SOCIETY OF THE  
DISTRICT OF COLUMBIA.

**Wednesday, May 6, 1903.**—The Vice-President, Dr. D. K. Shute, in the chair; over 57 members present.

The Editing Committee was authorized to publish a corrected list of the members of the Society in the next number of the MEDICAL ANNALS, and to reprint therefrom 500 copies of the list for the use of the Society.

Dr. D. S. Lamb read a communication from Concord, N. H., stating that Dr. Moses W. Russell died in that city about ten years ago. Dr. Russell was an honorary member of the Society, and this was the first intimation of his death that had been received.

Dr. Snyder exhibited two patients on whom he had operated for fracture of skull. The injury in each case was caused by a blow with a base-ball bat. See page 291.

Dr. Belt read a paper on "Enucleation of Eyeball in a case of injury by a piece of steel which penetrated the eye and caused sympathetic irritation. Implantation of gold ball in Tenon's capsule." Discussed by Dr. Burnett. See page 286.

Dr. Fry read a paper on "Three cases of Caesarean Section and two of Basiotripsy." Discussed by Drs. Moran, Castelli, J. Taber Johnson and S. S. Adams. See page 296.

The Society adjourned, to meet Friday, May 15.

**Friday, May 15.**—The President, Dr. Kober, in the chair. The regular order of business was dispensed with, and Dr. J. B. Murphy, of Chicago, addressed the Society on "Cholelithiasis from a Chemical Standpoint." A vote of thanks was extended to Dr. Murphy for his exceedingly interesting and instructive paper.

**Wednesday, May 20.**—The President, Dr. Kober, in the chair; over 51 members present.

A letter from the Commissioners of Pharmacy was read, asking the Society to appoint a committee to confer with them in the formulation of a new pharmacy and poison law for the District of Columbia. The Chair appointed on the committee Drs. Sowers, Magruder, Reyburn, Claytor and Barnes.

In accordance with the resolution passed at the last meeting, the Chair appointed the following members as the Committee on Milk Commission: Drs. deSchweinitz, Sprigg, S. S. Adams, Woodward and McCormick.

Dr. R. L. Sutton, Assistant Surgeon, U. S. N., was nominated for membership by invitation; referred to the Board of Censors.

Dr. D. S. Lamb read a paper on "Ectopic Pregnancy; Analysis of 30 Specimens in the Army Medical Museum." Discussed by Dr. Bovée.

The following cases and specimens were presented :

By Dr. Acker : Myxoedema in a child 3 years of age. Discussed by Drs. Magruder, J. Dudley Morgan, Nichols and Barnes. See page 292.

By Dr. Snyder: Renal calculus. Discussed by Drs. Vale, I. S. Stone, G. Brown Miller, Behrend, Keech and Bovée. See page 288.

By Dr. D. G. Lewis : Fibroid tumor of broad ligament. Discussed by Drs. I. S. Stone and G. Brown Miller. See page 303.

By Dr. Bovée : Fibroids of ovaries and uterus, and early cancer of the cervix. See page 274.

**Wednesday, May 27.**—The President, Dr. Kober, in the chair ; over 36 members present.

The Secretary was instructed to examine the records and report at the stated meeting in July all changes in the Constitution and By-Laws which had been made since the last edition was published.

Dr. D. Percy Hickling, for the Committee on Smoker, reported that he had received \$126 and disbursed \$125.

A letter was read from Mr. Charles Moore, thanking the Society for the farewell dinner which it had given him, and for the kind sentiments expressed at that time.

The following cases and specimens were presented :

By Dr. Kelley : Distended Gall Bladder ; removal of a large Calculus.

By Dr. Snyder : Cholelithiasis. Discussed by Drs. Crosson, Bishop and Vale. See page 305.

Dr. Bishop read the paper of the evening : " Rheumatoid Arthritis." Discussed by Drs. Nichols, Kleinschmidt, S. S. Adams, Vale, Acker and Kober. See page 275.

**Semi-annual Stated Meeting, Monday July 7, 1903.**—Dr. B. G. Pool, Vice-President, in the chair ; over 25 members present.

The Treasurer read the following report for the six months ending June 30, 1903 :

Balance on hand January 1,	-	-	-	\$1,856.60
Received Interest on deposits,	-	-	-	9.40
Assessments,	-	-	-	228.00
Entrance fees,	-	-	-	50.00
Total,	-	-	-	\$2,144.00
Disbursed per vouchers,	-	-	-	652.84
Balance,	-	-	-	\$1,491.16

The Treasurer was authorized to pay for the printing of the ANNALS during the summer recess.

Applications of the following candidates for active membership were read and referred to the Board of Censors :

J. Lee Adams,	- - -	Georgetown University,	- - -	1898
S. R. Carpeles,	- - -	National University,	- - -	1902
Henry M. Dixon,	- -	Columbian University,	- - -	1895
Sam'l R. Fowler,				

College Physicians and Surgeons, N. Y.,	- -	1902
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Samuel Fry,	- - - -	Columbian University,	- - -	1902
C. Norman Howard,	-	Columbian University,	- - -	1898
Wm. Bernard Johnston,		Johns Hopkins,	- - - -	1901
Albert L. Lawrence,	-	Columbian University,	- - -	1896
Walter H. Merrill,	- -	Columbian University,	- - -	1901
D. V. Mulcahy,	- - -	Georgetown University,	- - -	1899
Anthony M. Ray,	- -	University of Virginia,	- - -	1895
Laura M. Reville,	- -	Woman's Medical College, Pa.,		1890
W. B. Strickler,	- - -	University of Pennsylvania,	-	1861
Edgar D. Thompson,	-	Long Island Coll. Hospital,	-	1896
Gustav Werber,	- - -	Columbian University,	- - -	1894
Oscar Wilkinson,	- -	Tulane University,	- - -	1896

Applications from the following candidates for membership by invitation were read and referred to the Board of Censors :

Dr. H. P. Birmingham, U. S. A.

Dr. Jesse R. Harris, U. S. A.

Dr. C. L. Heizman, U. S. A.

Dr. H. A. Shaw, U. S. A.

Dr. A. G. Greenwell, U. S. N.

Dr. C. F. Stokes, U. S. N.

Dr. J. L. Taylor, U. S. N.

Dr. D. S. Lamb brought up for action the following proposed amendment to the Constitution, notice of which he had given at the last stated meeting :

"That wherever it is now provided that the result of a vote shall be determined by a count of the members present, the phraseology shall be so changed as to provide that the result shall be determined by a count of the votes cast."

The following as a substitute was offered by Dr. McCormick and accepted : "That the proposed amendment be referred again to the Executive Committee for consideration and report before the next stated meeting in January." The motion was carried.

Dr. Lamb gave notice that he would again bring up the proposed amendment for action at the next stated meeting.

Dr. McCormick, for the Committee on Milk Commission, reported progress. The Committee had organized, and had taken out Articles of Incorporation in order to avoid the possibility of suit against its individual members. It would not follow the precedent established here of endorsing any one dairyman ; all were



to be given an equal chance. Scientific experts would be employed to make the necessary examinations of the milk supply.

The report was accepted, and the Committee was requested to present a full report at the first meeting in October.

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## Deaths of Members.

DR. MOSES BRÜCKHEIMER, August 7, in his 63d year.

DR. R. HENDERSON GRAHAM, August 24, aged 54 years, 7 months.

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## Medical Miscellany.

**The Eastern Dispensary and Casualty Hospital** is still doing good work for the section of the city in which it is located. The following is a statement of the cases and operations for the past year. Casualty Department—Admitted to the wards, 428 cases; number of deaths 9; number of non-residents, 87; surgical operations, 504; casualty cases, 1,441. Dispensary work—Number of applicants for treatment, 2,025; cases treated, 1,248; cases refused treatment as unworthy, 777; of this number 334 were surgical cases requiring operation. Number of revisits, 6,327; prescriptions compounded, 8,875. It has always been the policy of this hospital not to treat any person able to pay. The attention of physicians is invited to the number of cases refused treatment, because they were able to pay. By treating only those bringing a certificate from the agent of the Associated Charities, no injustice is done the fraternity.—C. R. DUFOUR.

**St. Elizabeth Asylum**—Dr. Wm. A. White is the new Superintendent, who will take charge October 1. Dr. White graduated from Cornell University and Long Island College Hospital, and has served in the Binghamton (N. Y.) Stone Hospital for the Insane (which has a capacity of 1700 beds) and from which he came to Washington.

**Health Department, District of Columbia.**—Of *typhoid fever* 183 cases were reported as having occurred in August, 1903; 102 were reported as having recovered and 23 died. Number of cases under treatment at close of the month, 213. The number of cases of the fever reported during August, 1902, was 228, and the number under treatment at the close of that month, 343. While, therefore, the typhoid fever situation is far from satisfactory, it is much better than last year. As indicating the prevailing type

of the disease it may be stated that of 55 cases reported in June, nine have died, and among 123 cases reported in July, 16 deaths have occurred. Among the 183 August cases, 19 deaths have occurred and 114 cases are yet to be heard from.

New cases of *scarlet fever* and *diphtheria* have been very infrequent, but there is a tendency to an increase in the prevalence of diphtheria. Of scarlet fever, one case was under treatment August 1. Four new cases were reported during the month, two recoveries and no deaths. The number of patients under treatment August 31 was, therefore, five. The number under treatment on the corresponding day of last year was six. Four cases of diphtheria were under treatment at the beginning of the month. Eleven new cases were reported, seven recovered, and there were no deaths. The number of cases on hand at the close of the month was 15, being four in excess of the number under treatment at the close of August last year. The District has continued free from smallpox.

*Diarrhoeal Diseases.*—The investigation recently undertaken by the Health Department to determine the diet of infants dying from diarrhoeal diseases has been continued. From August 2 to 29, inclusive, 72 children less than two years old died from diseases of this type. Of these, 42 were colored and 30 white. No history as to diet was obtainable in three cases. In the 69 cases in which the desired information could be obtained, 11 children were wholly breast fed, two partly breast fed, and 56 fed wholly on substitute foods. In 34 cases condensed milk was used, supposedly fresh cows' milk, in 20 cases, and in two, so-called artificial foods.

*Food Inspection.*—Recent analysis of chopped beef having shown that it was in some cases adulterated with sodium sulphite, prosecutions were brought against the responsible parties. Two dealers who went to trial were each fined \$50. Each of the remaining five forfeited \$20 collateral.





## WASHINGTON MEDICAL ANNALS

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### THE RANGE OF RADIO-THERAPY IN THE TREATMENT OF NEW GROWTHS.\*

By T. N. McLAUGHLIN, M. D.,

Washington, D. C.

With the discovery of the Röntgen rays, the field of scientific research was enlarged to a degree which we did not appreciate at the time. There was a new force to be studied, but how to utilize, control or perfect was a problem which many of the most talented and ambitious workers in the profession have been trying to solve. It is my pleasure to call your attention to some of the results which have been obtained, to present a short record of some cases which have been treated for me, and to tell you what I have learned from reading and observation of its use and limitation.

The X-ray was first employed in the treatment of a variety of skin diseases, and the results were so uniformly good that its scope was extended to the treatment of malignant growths. There appears to have been little difference in the results obtained from the coil, accumulator or static machine. It was simply a matter of preference. The success has depended upon the skill and experience of the operator to a large extent, although the different tubes to be employed, the duration of the exposure, and the effect produced, has been one of the first considerations in each case. Now, in many patients there is unquestionably an idiosyncrasy, just as we find that certain persons will blister when exposed to the sun, an intense erythema develop when iodoform is applied, and many of those substances in daily use excite acute inflammation; so we have results from the X-ray out of all proportion to the duration and intensity of the ray.

Some of the burns which have followed its use are due to this idiosyncrasy, to an exposure which is too prolonged, to the close-

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\* Read before the Medical Society of the District of Columbia, October 28, 1903.

ness of the tube, to the character of the tube, and sometimes to the atmospheric conditions.

Now there is a difference of opinion as to the amount of irritation necessary to be produced in order to obtain any positive effect. Some are not satisfied unless there is a decided reaction, while others do not go quite so far. All cases should be treated in a tentative way at first. The reaction takes place usually in from 10 days to 3 weeks, and so by going slowly we are able to observe how susceptible the patient may be, and thus avoid some serious result. The cases which I report presented certain features which made them suitable for this line of treatment.

Case I. *Epithelioma of Eye*.—This patient was 83 years of age. Her general condition was good. Eighteen months ago a small swelling was observed at the outer border of the right upper eyelid. This papule after a short time began to ulcerate, and continued to spread until both lids and a considerable portion of the surrounding tissue had become involved. This growth was attended with considerable pain, a thin watery discharge and occasionally hemorrhage.

All operative measures had been declined. She finally consented to have the X-rays applied. The patient went to Philadelphia, where the treatment was given at first once a week, and then every other day. After four months' treatment she returned to her home, with the external surface entirely healed. After a few months there was evidence that all of the diseased tissue had not been cured, for some of the tissue about the orbit began to ulcerate; treatment was then resumed. This patient was relieved of all pain, the discharge was checked, and an unsightly deformity removed.

Case II.—*Epithelioma of cheek*, treated by Dr. Metzerott. This woman was 76 years of age, in fair health, and had suffered for three years. The ulceration covered a large surface, but was superficial. After two applications the pain ceased, and the secretion was materially reduced. The patient was discharged in three months, cured.

Case III.—*Epithelioma of nose*, treated by Dr. Metzerott. A woman 35 years of age, slightly anaemic but otherwise in fair health. This growth involved the septum, border of nostril and upper lip. It was situated upon the right side, and it was about as large as a silver dime. It was disfiguring, painful and the

amount of discharge was considerable. The first application relieved the patient of all pain, and reduced the amount of secretion. The second treatment, which was given at the end of a week, was followed by a severe dermatitis, which subsided in five days. The patient was discharged cured, after five applications, and the cosmetic effect was excellent.

Case IV.—Treated by Dr. Metzertott. A woman 40 years of age, with marked cachexia. One year ago her right breast was removed for carcinoma; six months later, her left breast was removed for the same cause. In four months, the cicatrices became swollen and painful. The X-rays were applied for the purpose of alleviating her suffering. A few exposures were made, but nothing was accomplished. She died in a few months from cancer of the uterus, which existed at the time the X-rays were applied.

Many cases have been reported where the patients have been entirely relieved of all pain in the wound produced by the knife, but in this case we were not so fortunate.

Case V.—A clergyman 56 years of age. Until January, 1901, his health had been exceptionally good. About this time he received an injury of his left hip by slipping upon the ice. The joint and left side caused him some annoyance on account of pain, but there was an absence of fracture and dislocation, simply a contused wound. The following May he sent for me. I found a distinct neuritis with an acute herpetic eruption along the course of the sciatic nerve. He was barely able to get about with the use of two canes, as he was losing all power in the leg which had been injured.

He was removed to the hospital, where he remained for about six weeks. He was repeatedly examined for any injury of the joint. A thorough examination of the rectum, and palpation of the abdomen failed to show the presence of any tumor. He was then removed to his home, since the neuritis had been cured, and his general condition much benefited by the rest. At this time he was placed under the care of Dr. Bishop, who kindly devoted his time and skill to the patient, and succeeded in helping him by giving static electricity. He was, however, compelled to use crutches, but managed to go out each day for a drive. In May, 1902, a tumor was detected in the left side of the pelvis, and two months later a swelling developed over the left scapula. When he visited Dr. Bishop in September the Doctor found a sarcoma,



which extended along the upper border of the scapula, and was about the size of an orange. Until May, electricity had been given every other day, but treatment was suspended during the summer months.

At this time a great change was observed in the patient's appearance. There was marked cachexia, almost complete loss of power in the muscles of the left leg, and great pain after remaining a considerable time in one position.

Radio-therapy produced an acute dermatitis which slowly developed into an ulcer, very superficial in character, more like an abrasion, but most persistent. Treatment was resumed after a few weeks. It immediately checked the discharge, and lessened the odor. It appeared to dry up the outer layers of the growth. About March he became too feeble to visit Dr. Bishop's office, and it was then observed that without the restraining influence of the X-ray the discharge became profuse, the odor most disagreeable and the exhaustion pronounced; from which cause he died in May, 1903. This man's physical condition would not at any time have justified a radical operation, and while the X-ray had no curative effect, it certainly made him more comfortable.

Dr. W. B. Coley recently reported that since February, 1902, he had had under observation at the General Memorial Hospital, 103 cases of malignant tumors in which the X-ray had been used. Of this number, 30 were recurrent cancers of the breast, 42 were inoperable sarcomata, and 25 were superficial cancers of the head, face and neck. In several cases nodules which had appeared after operations for cancer, and disappeared under the X-ray, had speedily returned in every instance. Of the 30 cases of recurrent cancer of the breast, in only a single instance had a large and deeply seated growth disappeared under the X-ray.

The prophylactic value of the X-ray was a question of the greatest importance, but at present it could not be satisfactorily answered because of the many factors entering into the problem. Coley believed that there were good theoretical reasons for employing the X-ray for this purpose, yet he was compelled to admit that his own experience in this field had not given much support to this view. He believed a trial of the X-ray before operation was positively dangerous for two reasons, viz: (1) it blinded the patient to the real danger of the situation, and (2) it was apt to mislead the surgeon as to the true limits of the growth

when operation was demanded. — *New York Medical Record*, October, 1903.

Now, the conclusions which are presented for your consideration and discussion are as follows :

*For a Curative Effect.*

1. The X-ray is applicable to very small epitheliomas of the face, especially about the nose and eye, which, if removed by the knife, would lead to deformity.
2. And to large rodent ulcers, superficial in growth, without glandular involvement.

*For Palliative Effect.*

3. In cases which are inoperable, where large vessels are situated, for the purpose of alleviating pain, checking discharge and lessening the odor.
4. The X-ray has not produced a curative effect in cancer of internal organs.
5. The X-ray should not be applied to primary cancers, for valuable time may be lost, other points of infection may develop, and the knife and caustics are more reliable,
6. That the X-ray will cause a more general distribution of the infection has not been determined.
7. After an operation the X-ray may prove valuable in eliminating any diseased tissue which might be a source of re-infection.

That we have a wonderful power, capable of producing most astonishing results, there is no doubt ; but may not this mysterious energy also produce effects beyond our control ? Let us, then, be cautious ; still hold on to the old methods which have been of such service to us, and use this new force in selected cases.

**Dr. Bishop** commended the paper. If we only knew the range of radiotherapy in the treatment of new growths, 99 per cent. of the literature upon the subject might be destroyed. The method was yet in the trial stage, and ascertaining its range was a slow process. The X-rays themselves were as yet an unknown quantity, and many diverse opinions had been advanced as to their nature. Some said that they were due to very high-tension electricity outside the tube ; others that they were electric waves converted into radiant energy. When the tube was excited by a machine or coil, we got a cathode stream to the target, which there produced the rays, reflected as ions and electrons ; this was the latest theory.

“What was cancer?” This was also an unanswerable question at the present time. We could not rely on the pathologists for an answer, because they could not always make a diagnosis. We must often depend on the clinical history, and this was not infrequently misleading. Hence, some “cancers” which had been “cured” may not have been cancers at all. His experience had been that rapid growths do not yield to radio-therapy. Dr. McLaughlin’s case was of very rapid growth, requiring not more than six months in all for its development up to the time of death. On the other hand, slow growths were very susceptible to radio-therapy; surgeons also had brilliant results in these cases. It was a long time before the neighboring glands became involved. The difference between the two methods was this: Even after the glands were involved we could often get good results by radio-therapy, as we were able to follow up the disease. Surgery did not offer the same prospects.

The advisability of treating growths by radio-therapy before operation depended largely on the condition of the patient, and the condition of the growth itself. In cancer of the breast neither the physician nor the patient lost anything by a short course of X-ray treatment; many cases were materially benefited thereby. It made the field of operation more aseptic by destroying the germs. Operation should be performed as soon as it was evident that the case was not progressing favorably.

After operation, every case should be subjected to X-ray treatment. Experience had shown that the surgeon could not follow up and remove all the diseased tissue. In illustration, he related a case in which operation was performed by Halstead, a case of recurrent cancer, and referred to him by Dr. Bromwell. All the diseased tissue possible had been removed, including axillary glands, etc. The mediastinal glands were evidently involved too. Little was expected from X-ray treatment, but nevertheless it was given thrice weekly in order to give the patient every chance. In three or four weeks a severe dermatitis set in. The X-ray was played directly upon the part. The result was that the tissues made a very evident effort to heal. The odor subsided, the pain was relieved, but the patient eventually died from general infection.

There should be perfect harmony between the surgeon and radio-therapist. The surgeon should submit the cases for electrical treatment early enough; he should not wait until the scar had become infected. Some patients were much more susceptible to the effects of the rays than others; hence, care should be taken in making the applications, particularly at the beginning.

**Dr. Hickling** said that the limitations of the method were interesting to all. As had been intimated, they were not well understood at the present time. A couple of years ago, in Chicago, the rays were being tried in all imaginable conditions



to ascertain the results. There is little doubt that, as stated by Dr. Bishop, Dr. Pratt was the first to use this method in treating malignant growths. He had a large place there, and kept two machines in constant use. These efforts should bring tangible results. The subject was not thoroughly understood, and results were published with some temerity. The question was, Was the effect due to an *electric* or a *light* form of therapy? Reasoning from analogy,—the Finsen light, etc.,—the latter appeared to be the case. The question was an important one. We knew of the encouraging results which had been obtained in tuberculosis, particularly of the skin, and of the effect upon the germ of the disease. Many physicians were now willing to have their patients treated by X-rays. There was danger, however, in delaying operation in case of malignant disease; the only hope for the patient, according to our present knowledge, was early and complete operation.

An important point which had not been mentioned was the following: the rays should not be used on growths broken down so as to contain pus, on account of the danger of driving infection deeper and deeper into the tissues. This was acknowledged by all. Probably the true field for radio-therapy was in the treatment of malignant growths after operation. In the treatment of glandular diseases, the results were problematical; some reported favorable results, others the reverse. He believed that the therapeutic effects of the X-rays depended more on light qualities than on electrical qualities.

**Dr. Carr** said that what made it difficult to judge of the efficacy of X-rays was the varying results obtained from their use in similar cases; in the case of one growth a beneficial result was obtained, but in another very similar case the patient was apparently made worse. This was true, particularly, of carcinoma and epithelioma. He had seen epithelioma cured by the rays; other patients, treated in the same way by the same man, were made worse. In one case there was no recurrence after five years; the diagnosis had been microscopically confirmed. The same physician failed in a similar case, and Dr. Carr cured the patient by operation. We were taught that in superficial epithelioma, when the glands were not involved, if we caused the ulcer to heal entirely, it would stay cured; but he had "cured" an epithelioma over the parotid gland once, and, subsequently, several radio-therapists "cured" the same patient four or five times. Dr. Groover was now "curing" her again. He related other cases which illustrated the uncertainty of the "cures" wrought by radio-therapy. In view of this uncertainty, one should always give a guarded prognosis. Why some patients were benefited so materially, and others not, was not known. It should be remembered that even when a cure was not brought about, the patient was often given marked relief.

**Dr. A. F. A. King** said that he was much interested in Dr. McLaughlin's very modest paper. One word, with which he ended up the description of several cases was, however, misleading,—the word "cured." A layman reading the article would very likely get the idea that permanent cures had been produced, whereas we knew that years, or even decades, must elapse before the permanency of the cure was established, and the patient was in reality *cured*.

Dr. Bishop had mentioned the electronic theory of electricity. The theory was interesting, as it revolutionized our previous views. It taught that electricity was a material, and had a corpuscular structure. The very small negative, or cathodal rays, were the same as X-rays. An electron corpuscle was 1,000 times smaller than an atom of hydrogen: this explained how the rays went through an inch plank as easily as water through a net. Electrons, like other forms of matter, also possessed inertia. He believed that much would be developed from the theory, which was in itself interesting and novel.

**Dr. Borden** commended the paper. Dr. McLaughlin's statements and conclusions were conservative, and in keeping with the times. He probably used the word "cured" in the ordinary sense.

What were X-rays? The theory just mentioned was interesting. Physicists were fighting out the question. Everything advanced so far had been disproven. As to Dr. King's theory, Dr. Borden could not conceive of matter so attenuated but that particles of it would stand in the way of the passage of the rays. Hence there must be, to his mind, something in the way of the many straight lines in which the electric waves traveled. Radium also emitted radiation, yet it was said to lose none of its bulk in a million years. The X-rays had four well-known effects: 1. They discharged an electrified body. 2. They produced fluorescence in some substances. 3. They produced chemical changes in some substances, *e. g.*, in photography. 4. They had a marked effect on living cells. It had not been proven, however, that they had any selective effect on any one tissue.

As to cancer, we did not know what it was, but we did know that electricity produced changes in these morbid tissues, the effect varying in different cases according to the varying conditions. We knew also that its effect on vital tissues was decidedly superficial. It did not penetrate deeply. Its activity seemed to be filtered out, *e. g.*, its effects on one side of the hand were as great as on the other, but no burn was produced on the farther side. The cures too, were only superficial. This was generally agreed to. The X-rays had little effect on the tubercle bacilli in the tissues, they had more effect though when the bacilli were superficial, inhibiting their growth. But no case of cure of

pulmonary tuberculosis by X-rays had been reported. Cures were recorded in cases of lupus and superficial lesions.

Carcinoma and sarcoma extended deeply into the tissues, and many observers admitted that it was doubtful whether a single authentic instance of their cure by X-rays was on record. They might be affected favorably, but they were not cured. Murphy reported a case of cancer of the breast in which there was a diminution in the size of the tumor under the use of the rays; the patient died of intercurrent disease, and the microscope showed that while the connective tissue elements were increased, the cancer cells had not been materially affected. Hence, the efficacy of X-ray treatment was at present limited to superficial growths only; it did not cure deeper malignant growths, although it often relieved the distressing symptoms.

He agreed with previous speakers that interference by the X-rays in cancer not yet affecting the glands was wrong. Operation should be performed at once, as it was impossible to tell when the glands might become infected. Another danger was toxæmia. It was common for patients to have fever, and symptoms of toxic infection after X-ray treatment, due possibly to the absorption of deleterious matter which might have been set free by the rays.

**Dr. Abbe** said that radium-therapy—the use of radium salts—was an interesting feature of this subject. It was first proposed as a treatment for skin diseases, in Paris, and afterward was employed at Vienna in the treatment of malignant growths. Some had even reported cures in the latter cases. It was too soon, however, to be sure upon this point. Radium was doing the same work as the X-rays, and appeared to have accomplished good results. He had been using radium in a case of cancer of the cervix, with much apparent benefit. The patient had been taking morphine four times daily, but now took none. The symptoms had been relieved, and he was pleased with the results of the treatment.

**Dr. Mary Parsons** inquired as to the mode of death in deep cancers. Cases had been reported in which cerebral symptoms had appeared just before death in patients who had received X-ray treatment. She inquired whether there was any connection between these symptoms and the mode of treatment, as such had not been usual in her experience.

**Dr. Bishop** said that he had seen at least two cases of tumors of the breast in which the growths disappeared under X-ray treatment. He believed that he had as much right to call these tumors malignant, as anyone had before a microscopical examination was made. Morton also reported such cases. The cases in which the growths had broken down, and the glands were affected, should be subjected to X-ray treatment, because they were then inoperable. It must, however, be given antiseptically. Deep cancerous



tumors should not be treated with the X-rays for fear of general infection. It did, however, relieve the symptoms. The rays did penetrate the tissues, and the fact that both sides of the hand were not burned signified nothing; the nearer side offered more resistance to the rays, and hence a greater effect was produced there.

**Dr. McLaughlin**, in closing, thanked those who had taken part in the discussion of his paper.

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CASE OF UTERINE FIBROIDS, ONE OF WHICH PROTRUDED INTO AND WAS ADHERENT TO THE VAGINAL WALL; DEATH FROM UTERINE HEMORRHAGE.\*

By MARY PARSONS, M. D.,

Washington, D. C.

The specimen consists of the uterus, somewhat enlarged; its cavity much dilated; large submucous, mural, and subserous fibroids; one large fibroid shaped like the letter L, protrudes into the much dilated vagina and is adherent in several places to the vaginal wall. The latter is thickened. Right ovary thickened and firm, chronic inflammation; left ovary so imbedded in adhesions as to be unrecognizable. The bladder is thickened, dilated and adherent to uterus; it reached up to the umbilicus.

The necroscopy was made by Dr. D. S. Lamb. It showed swelling of the lower limbs, the right more than the left. The examination was limited to the abdomen, which contained much turbid liquid; peritoneum of lower abdomen thickened and roughened. Viscera anemic, from loss of blood. Right kidney much enlarged, (compensating hypertrophy); left kidney atrophied and ureter dilated; the hydronephrosis was doubtless from pressure below. Much recent bloodclot in uterus and vagina. The bladder contained about three quarts of urine; its walls thickened, showing the condition to be chronic.

**Dr. Bovée** considered the case and specimen very interesting, inasmuch as Doctor Parsons was able to give a complete clinical history of the growth with its accompanying distresses. There must have been good reason why the growth was not removed, as it should have been. Dr. Bovée suggested the term "surgical intervention," instead of "surgical interference."

**Dr. Reyburn** reported a similar case, seen in 1863. The woman

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\* Reported with specimen to the Medical Society of the District of Columbia, October 14, 1903.

was now living and in good health. The tumor was so high up in the pelvis that it gave the woman the appearance of being seven months pregnant.

**Dr. Bovée** recalled a case treated by Dr. J. Harry Thompson in Columbia Hospital previous to 1878, by hypodermatic injection of ergot. The woman was now about 60 years of age. Recently she had come to him (Dr. Bovée) to have the growth removed. The size was remarkably great, and in the woman's opinion, increasing.

**Dr. J. Taber Johnson** thought the case an object lesson in that it showed how much suffering a person can endure, and yet survive. He supposed Dr. Parsons had a good reason for not having the tumor removed, as this was the only means by which the woman could have been restored to her former health. Patients usually recover, when the tumor has not degenerated.

**Dr. I. S. Stone** asked Dr. Parsons if he understood correctly that she considered a free flow, amounting in this case to the proportions of a hemorrhage, as a frequent occurrence at the menopause, and that such flow did not indicate organic changes. He had learned to regard every such case as one demanding investigation, and believed there were very few cases of metrorrhagia or menorrhagia which did not require treatment when the disease occurred at or near the time of the menopause. He occasionally found changes in the blood itself, or some systematic cause which explained the symptoms, but in almost every case it would be possible to find organic changes in the uterus itself which could only be appreciated by a most careful physical examination.

In referring to the treatment of uterine fibroids he suggested that nearly all patients now preferred to have operations performed for their removal, rather than to try uncertain and indefinite methods. In Dr. Parsons' case the patient doubtless refused to have an operation, but he must refer to the unwisdom of detaining patients for long periods of electrical or other treatment, when everybody knew such methods had always been uncertain and of doubtful utility. In fact, patients are now opposed to such delay, and occasionally condemned such action on the part of their physicians. When the mortality resulting from hysterectomy and myomectomy was 50 to 75 per cent. it was commendable to avoid operation, but the results now obtained were such as to favor operation in almost every instance where a growing tumor was found.

**Dr. Parsons**, in closing the discussion, said that the woman absolutely refused "surgical intervention" until five weeks before her death; the hemorrhage and most distressing symptoms had abated four years before; care was exercised in lifting, in putting the hands in hot water, etc. She wished to emphasize the fact that the patient was not an invalid, but had supported a family, and had attended to her religious duties and various festivities.

A BRIEF NOTE ON THE X-RAY TREATMENT OF  
GLANDULAR TUBERCULOSIS.\*

By F. P. VALE, M. D.,

Washington, D. C.

It is now just a year since I had the possible value of the X-rays in the treatment of glandular tuberculosis, accidentally demonstrated to me, through the results obtained in the case to be reported this evening. For a year this patient has remained entirely well, until just within a few weeks, when he began to show evidences of a tubercular intra-cranial lesion. His progress has been so satisfactory since again instituting X-ray treatment, and promises so well to continue to complete recovery, that I present him to you this evening, for your examination, with the hope that I may be able to bring him before you in a few months cured.

A year ago I knew of not one case of glandular tuberculosis thus treated, and have since naturally been on the lookout for reports of any such. Last winter I met the first reference to the subject in the third edition of Dawson Turner's Manual, which had then just appeared. He briefly mentioned six cases of glandular tuberculosis, two of them cured and the others greatly improved, by exposures to the X-rays.

In the most satisfactory book on X-ray therapy which has yet appeared, that of Pusey and Caldwell, just from the hands of the publishers, I find reported five cases, in all of which there was more or less marked reduction in the size of the glands, and in one, complete disappearance, from similar treatment. Pusey says that as yet there is no literature on the subject, but that there is reason to believe a general attempt is being made at the treatment of this condition with the X-rays.

I have talked to a few physicians who devote their time to this class of work, without gaining much additional information. Dr. Ellsworth, however, Dr. Williams' assistant at the City Hospital, Boston, was under the impression, without referring to their records, that several such cases had been successfully treated in the clinic, and thought they were reported in Williams' book.

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\* Read before the Medical Society of the District of Columbia, October 14, 1903.



But on consulting it I find only the general statement, that even the largest tubercular glands respond surprisingly well to treatment with the X-rays.

The case I present this evening is also most interesting as an illustration of the difficulty, at times, of differentiating the early stages of primary glandular tuberculosis and Hodgkin's disease. The identity of the two diseases has been much discussed, but I think at last disposed of negatively by recent work, notably that of Reed, as recorded in the *Johns Hopkins Hospital Reports* for 1901-2 (p. 131). To understand the extreme loss of weight of this patient it is necessary to bear in mind the more severe manifestations of glandular tuberculosis as seen in such cases as that of Delafield (*N. Y. Med. Record*, '87, p. 424), and that of Hilton-Fagge (*Path. Trans.* 1874, Vol. XX, p. 235). Such cases bear the same relation to the chronic forms of glandular tuberculosis that "galloping consumption" does to fibroid phthisis. Courmont, Tixier and Bonnet (*Jour. de Physiol. et de Path. Gen.* 1889, 1, p. 826) report a case similar in almost every detail to mine. Another similar case is that reported by Ardouin (*Bull. de la Soc. Anat. de Paris*, Nov., 1897, p. 846). These cases of "lymphadénie aleucémique," due to the tubercle bacillus, have also been studied by Dulcion (*Bordeaux Thèse*, 1896), Sternberg (*Zeitschr. f. Heilk.*, 1898, Bd. XIX, p. 21) and others.

I hesitated to employ tuberculine for diagnostic purposes, because the profession is not yet of one mind as to the harmlessness of this procedure, though I think the testimony of Whitaker, Anders, Trudeau, Shattuck and others should lead us to its adoption. In five cases of Hodgkin's disease in the *Johns Hopkins Bulletin* just referred to, tuberculine gave negative results, and Reed also states that bad effects from its use have not been seen.

Mr. S. came to me the middle of July, '02. He has never been sick until the present illness began six months ago, when he noticed a slight swelling on the left side of his neck. Its increase in size has been very slow, but he has progressively lost weight, amounting now to fifty-five pounds. He has never had syphilis or any other venereal disease. His family history is uninteresting save for the not very significant fact that of nine children, two sisters died of tuberculosis.

A careful examination threw no further light on his trouble. A blood examination showed a slight secondary anaemia, with

leucocytes about normal as to number and kind. My first impression, as I told him, was that the swelling was tubercular.

September 1st of the same year he again reported to me. He had lost an additional ten pounds in weight. During my absence from the city in August he consulted one of our leading surgeons, who advised against any operation, without committing himself to a diagnosis. Largely influenced by this opinion, and thinking he leaned toward a diagnosis of Hodgkin's disease, I began exposing the affected side of the neck twice a week to the X-rays for fifteen to twenty minutes. He had taken no medicine, nor did I then prescribe any. Imagine my delight at seeing the man rapidly improve. In two weeks he had made the astonishing gain in weight of fifteen pounds. During another four weeks he almost entirely regained his normal feeling of well-being and strength, though the further gain in weight was only a few pounds. The swelling in the neck had been reduced one-half in size. It was very apparent to myself and all his friends that he was rapidly getting well. I desired much to know what I was curing, and requested permission to cut out a piece of the swelling for microscopical examination, to which he consented, with the suggestion that if the mass could be removed without danger it should be done.

I found three enlarged lymphatic glands, about the size of walnuts, lying deeply under the sternomastoid muscle. Above and below, the other glands of this deep lymphatic chain were also enlarged, but not to the same extent, nor sufficiently to have allowed them to be palpated, on account of their deep situation. The incision was extended from the clavicle to the mastoid process and all the glands removed, with the exception of two, high up under the angle of the jaw. These were left, as their relations were such that their removal would have added greatly to the risks of the operation.

Under the microscope there was the unmistakable histological picture of tuberculosis—the entire section showing caseous degeneration, with the structure of individual tubercles faintly discernible in places.

Nothing further was done for the patient. After a temporary loss of five pounds following the operation, he rapidly gained in weight. The two glands left under the angle of the jaw increased in size for the first four months until they could be seen as well

as felt. Then they gradually grew smaller and at the end of ten months had entirely disappeared, and the patient had gained in all forty-five pounds, or within about twenty pounds of his normal weight of two hundred and twenty.

He remained in good health until this fall, when he reported to me again about the first of September. "He has lost eight or ten pounds in weight. He complains of loss of sense of taste; of his tongue feeling swollen; and of his right arm and leg being numb and weak. His speech is hesitating and thick, and cerebration is not normally active. His memory is poor. His tongue projects to the right side. The knee jerk on the left side is markedly exaggerated. He cannot support himself on the left leg alone." These symptoms very clearly pointed to an intra-cranial lesion, which, in view of his previous history, is undoubtedly tubercular—involving the meningeal lymphatics.

His improvement already at the end of a month of renewed X-ray treatment has been most satisfactory. He can support himself on his left leg—showing its increased strength—and feels much stronger. The exaggerated knee jerk has disappeared. Even though the ultimate result is not what I now expect, the beneficial effects of the X-ray treatments have been so marked I deem it of sufficient interest to bring before you.

In endeavoring to satisfy myself that the involvement of the cervical lymphatics was the sole cause of all his loss in weight I took several radiographs of the chest, which I think would have revealed any associated trouble in the lungs.

Encouraged by this result, I have used the X-rays in one other case—one recently discharged from the sanitarium at Saranac Lake as "arrested." The lungs in this case were affected secondarily to the tubercular process in the cervical glands. The lungs had rapidly improved at the sanitarium, but the glands had increased in size. The advisability of their removal was considered by his physicians there, but decided against, for fear of bringing the tubercular process in the lungs into renewed activity. On his way to the southwest he stopped in Washington for two weeks, and I exposed the glands daily to the X-rays. Even during that short time they diminished appreciably in size, and a few weeks later he wrote me they were hardly half as large as before. [November 30th, the patient was so far improved as to return to work.]



**Dr. Reyburn** spoke at length upon the value of the X-rays in the treatment of malignant disease. Current literature was full of records of cures, and he regarded the efficacy of the method as fully established. The knife, by opening the vessels, paved the way for infection, and predisposed to recurrence of the growth. Experience had shown that the knife was of less and less value in these cases. Of the recent literature on X-ray therapy, he would only mention that 58 papers were read before the last meeting of the Electro-Therapeutic Association.

**Dr. Chappell** questioned the possibility of cerebral tuberculosis producing the constitutional retrogression described, without evidence of fever or pain; also, if the case was one of tuberculosis, he questioned the efficacy of X-ray treatment.

**Dr. Bishop** believed that the journals were now modifying their unstinted praise of X-ray therapy. Many cases were cured, however, without the knife, and it was wise to discriminate; much depended upon the patient and the character of the growth.

In applying the rays to an open and suppurating growth the surface should be cleansed with hydrogen peroxide, dried, and covered with bichloride lint; this prevented the small particles, flowing to and from the parts, from producing infection by driving dirt into the tissue. Much depended on the kind of tube used. The first important effect was the contraction of superficial structure, and the squeezing of fluid substances into the circulation; hence the tubes should not be too near the surface of the growth. In glands not broken down he used a tube of moderate vacuum, not nearer than 10 or 12 inches. He could not understand how, in the case presented, any effect could be gotten intra-cranially without injuring the skin and hair. He expressed a preference for the *Toepler* machine for X-ray work in the treatment of cancer and tuberculosis.

## ECTOPIC PREGNANCY.—ANALYSIS OF THIRTY-TWO CASES.\*

By D. S. LAMB, A. M., M. D.,

Washington, D. C.

Ectopic pregnancy has been divided into tubal, ovarian and abdominal, according to the part of the female internal genital apparatus which is primarily involved. The ovarian and abdominal forms are rare; the great majority are tubal, and, according to Martin, 48 in 77 cases, or nearly two-thirds, occurred in the *ampulla* of the tube, while but one was ovarian and none abdominal.

\* Read before the Medical Society of the District of Columbia, May 20, 1903.

There are in the Army Medical Museum 32 specimens of ectopic pregnancy, 12 of which involve the right side, 13 the left and 7 are uncertain ; 23, or 72 per cent., are of tubal origin, one is tubo-uterine or interstitial, one apparently tubo-ovarian and one began in the tube and passed into the broad ligament. In 9 cases the place of development is not stated, and the specimen does not show. One specimen is a fetal calf.

Eighteen specimens were removed post mortem ; celiotomy was done in 13, or 37 per cent. of the whole number, and in one case the fetus ulcerated its way into the rectum and was discharged piecemeal ; the mother recovered and lived for some years afterward.

In 9 of the 18 post mortem removals, rupture of the sac had occurred, with hemorrhage and speedy death—in one case at about 12 days of development, in one at about two weeks, one at one month, one at 33 days, one at 6 weeks, two at 2 months, one at 3 months, and one at 4 months. In one case rupture occurred at between 6 and 7 months, the patient dying from peritonitis ; in one case the sac was said to be the size of a walnut, so that the period of pregnancy can only be estimated ; and in one case the time of rupture is not given.

In 6 of the 18 post mortem specimens there were some points of especial interest. In one there was coincident intra- and extra-uterine pregnancy ; the intra-uterine embryo was discharged at about the 72d day, the mother died soon afterward, and the extra-uterine embryo was found at the post mortem. A second case was that of a fetal calf about 5 months old which was taken from the slaughtered cow 5 years afterward. In a third case the fetus died at about the 8th month and was retained by the mother 55 years, becoming converted into a lithopedion. In a fourth case, the fetus being at term, the mother died of blood poisoning. In a fifth case a fetus, also at term, became gradually decomposed, and the debris was discharged through the tube, uterus and vagina until only the bones were left in the sac ; how long the mother lived afterward is not stated. In another case the woman attempted an abortion, using a lead pencil, and died of peritonitis.

Of the 13 cases in which celiotomy was done, in one the diagnosis was made and specimen removed between the second and third week of pregnancy ; the result is not stated. In a second

case the operation was done at about the 67th day of pregnancy ; patient recovered. In a third case at the tenth week ; rupture. In two cases the operation was at three months, because of rupture ; recovery. In a sixth case at four months ; recovery. In a seventh case at the fifth month ; recovery. In an eighth case, between seventh and eighth month ; recovery. Ninth case, at the ninth month, removing a seven-months fetus ; the mother died. Tenth case, fetus at term, operation because of rupture ; result not stated. Eleventh case, operation at thirteenth month, fetus at term ; recovery. In the other two cases the time of operation is not stated, and in one the result is not given.

The ages of the mothers were from 20 to 36 ; one each at 20, 21, 23, 31, 32, 33, 34, 35 ; three each at 26, 27 and 28 ; and four each at 30 and 36 ; in seven cases the age is not stated. In nine cases, or nearly one-third, it was the first pregnancy ; in five cases, the second ; in two cases, the third ; in two cases, the fourth ; in three cases, the fifth ; in one case each, the sixth and eighth, and in nine cases not stated.

Of the nine primipara cases, the length of time the woman had been married is given in seven ; one year, two years, several years, seven, eight, ten and twelve years respectively. Of the fourteen multipara, the interval between the ectopic and last preceding pregnancy is given in six cases ; respectively two, five and seven years ; in two cases, ten years ; in one case, eleven ; leaving nine cases in which the interval is not stated. Seven of the mothers are recorded as white ; ten colored ; fifteen not stated. At least twenty-four were married ; one was single ; in seven cases not stated. The discharge of the decidua is noted in a few cases ; in one at the third month ; in one at the fifth, after an intra-uterine examination ; in a third it seems to have been discharged between the sixth and seventh month ; in three other cases it was discharged, but at what time is not stated ; and in eleven cases it was found in the uterus. In the remaining twelve no mention is made.

The appearance of a pseudo-menstrual discharge during the pregnancy is given in three cases ; in one a bloody discharge occurred irregularly ; in a second case there was a regular flow after the third month until term. In six cases the corpus luteum was found in the ovary on one side, while the pregnancy was in the



tube of the opposite side ; twice in the right ovary, four times in the left ; one-fifth, at least, of all the cases.

Some of these cases have been published, others have not. Two which have not been published seem to me of enough interest to merit publication ; one was shown to this Society many years ago by Dr. J. Harry Thompson—the other was shown to some society by Dr. W. H. Lee. I have looked to find if it was published, and have been unable to find it anywhere.

Dr. Lee's specimen consists of the uterus and appendages connected by firm adhesions to the colon ; the left tube is dilated into a large sac containing the bones of a fetus at term ; the death of the fetus was followed by gradual removal of the soft parts, the process lasting several months. The patient survived some years.

Dr. Thompson's case was that of coincident intra- and extra-uterine pregnancy ; the specimen consists of the uterus and appendages, with adherent portion of sigmoid flexure and rectum ; the involution of the uterus is well advanced ; in the recto-uterine fold are the remains of a cyst, rather larger than an orange, which contains an embryo and membranes ; the embryo is shrunk and somewhat shapeless, and was probably about eight weeks old ; the membranes show interstitial hemorrhages. Dr. Thompson gave the following history : The woman was first seen by her physician February 3, 1872 ; she had missed her menses since December, 1871 ; had severe pain. A few days afterwards she had discharge of brownish offensive matter from vagina. Sent for Dr. Thompson on the 13th. He introduced sponge tents, and a shrivelled embryo was discharged. The pain continued with some discharge of membranous shreds ; this ceased, and three days later bright red blood-clots were discharged, ten inches long, like casts, believed to have been formed in the Fallopian tubes. The uterus was almost as small as when unimpregnated. She was anesthetized, and a tumor was felt to the left of the uterus. Twenty-four hours afterward, peritonitis set in and she died. The necroscopy showed the conditions described ; the sac had ruptured, and there was some bloody effusion.

**Dr. Boveé** said that a report like this on a number of cases was very interesting. In one case the trouble was of 55 years standing. He believed that there was no similar case on record ; the longest

he had been able to find was 53 years. Five years ago he operated on one of 9 years standing. He had recently operated on one at full term here, and two weeks ago, in New Orleans, he operated upon another. Dr. Lamb's specimen was interesting as showing the degeneration which occurred after the death of the fetus: calcification, or erosion of the soft parts, and the massing of the bones together in a small sac. In the case operated on in New Orleans, the feet of the fetus were gone, the fibulæ protruded through the flesh, which was still attached to a point below the knees. The arms were in a similar condition; the anterior abdominal wall and umbilical cord had sloughed away, and parts of the face were gone.

Dr. Lamb had also shown a specimen of unruptured tubal pregnancy at full term; he questioned the possibility of this. The tube could not stand such a strain; it ruptured, and the fetus continued to live intra- or extra-peritoneally; it might become encapsulated, and might go to full term. Sometimes there was no sac, the fetus being free in the abdominal cavity.

In stating the history of another case Dr. Lamb said that soft matter was extruded through the tube and uterus, and the bones were in one sac. The history in this case was probably unreliable. It was difficult to see how such an extrusion could have taken place. There might have been an erosion into the vagina, but this was improbable. Another possible explanation offered was that the clots which were formed in the tube were passed; but this also was unlikely, because the tube was larger at the ampulla than at the isthmus, and the clot, being wedge-shaped, could not be expelled through the tube into the uterus.

It would be interesting to know the relation of "conservative" surgery on the tubes and ovaries to the aetiology of ectopic pregnancy. Transmigration of the ovule across the peritoneal cavity was a possibility, as was shown by the specimens. It was an important point sometimes in performing ovariectomy to prevent a subsequent pregnancy. This brought to mind the remarkable instances in which pregnancy had occurred after removal of both ovaries. In one case, Dr. Bovée did "conservative" surgery on a woman who was believed to be sterile; a year later he operated on her for tubal pregnancy. Similar cases had been recorded. It was even a question whether such work did not predispose the woman to this accident. The consensus of opinion was that anything which crippled the cilia of the mucous membrane of the tubes was liable to produce tubal pregnancy.

**Dr. Lamb** said that he had no personal knowledge of the cases he had reported; he merely read them as they stood, and he could not vouch for their correctness.

## TWO CASES OF CEREBRAL HEMORRHAGE.\*

By D. S. LAMB, A. M., M. D.,

Washington, D. C.

The first case was in a colored man only 26 years old; unmarried, a laborer and said to have been a hard drinker. All the history obtainable was that he had been unconscious 14 hours when admitted to hospital. He was in hospital just two weeks when he died. When admitted, his pupils were dilated, breathing stertorous, pulse full and strong; urine 1030, with some albumin, but no sugar. Respiration 24 to 30. He had a sore on the glans penis, a urethral discharge and a bubo in each groin. He was well nourished. While in hospital his respiration fell to 20; temperature in the 98s and 99s, except once when it rose to 100. Urination involuntary.

The necroscopy confirmed the record as to his being well nourished, and also the sore on the glans and a suppurating bubo in each groin. The scalp was congested, skull normal; some blood under the left dura of the convexity; this blood had flowed out through a rupture and flowed down around the pons and oblongata. The rupture communicated with a large cavity in the left cerebral hemisphere, posterior part; this cavity reached from the base to the summit of the brain, and was filled with recent bloodclots. The heart showed some old pericardial adhesions. In the lower lobe of each lung was some broncho-pneumonia. Some cirrhosis of liver. In the pelvis of the left kidney was some pus, probably resulting from the extension of suppuration up the ureter.

The following remarks may be made on this case: 1st, that hemorrhage into the substance of the cerebral hemisphere without involving the basal ganglia or ventricles is rather rare; 2d, that rupture of the hemorrhagic cavity on the surface of the convexity is also rather rare; 3d, the age of the subject, only 26, is unusually early for cerebral hemorrhage; 4th, the fact that he had both syphilis and gonorrhoea suggests an explanation of the hemorrhage, although to the naked eye the vessels do not show degeneration, sclerosis or aneurism.

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\* Reported with specimens to the Medical Society of the District of Columbia, October 14, 1903.



Case II.—A colored man, 38 years old at death, had measles, mumps and typhoid fever during boyhood ; afterward gonorrhoea and stricture of urethra. At 35 he had a prolonged paroxysm of coughing, followed by violent vomiting of bitter, greenish-yellow fluid, and in a few hours became unconscious, remaining so nearly all day ; after regaining consciousness he was noticed to be paralyzed in the right arm and leg and with sensations of "pins and needles" in his right side ; some deafness in left ear. In about one week he had regained sensation in right side. Two months afterwards he was admitted to hospital. Examination then showed the right eyelid drooping ; left corner of mouth drawn up ; tongue protruded to the left ; some motion in right arm and leg. He never recovered sufficiently to walk. A few days before death he was told that it might be necessary to transfer him to the Washington Asylum, and it is thought that the consequent excitement precipitated a fatal cerebral hemorrhage.

The necroscopy showed the following lesions : He was well-nourished. There was much blood under the scalp ; the skull, dura and pia normal. Arteries of brain markedly sclerosed. Some serum in lateral ventricles. The evidences of the old trouble three years before consisted in a thin yellow clot in the left thalamus near the ventricular surface and a number of vacuolations in the remainder of the thalamus ; also a thin yellow clot in the lower part of the pons about the median line. The recent hemorrhage was large, and situated in the right thalamus. The lungs were much pigmented, and their lower lobes darkly congested, presumably hypostatic. The heart weighed 18 ounces, therefore enlarged ; the left ventricle hypertrophied and somewhat dilated ; slight thickening of aortic valve. The intestines showed no evidence of old typhoid fever.

The remarks on this case are as follows : 1st, The age of the man, 35 years, is rather early for cerebral hemorrhage and for arterio-sclerosis ; 2d, the rupture of blood vessels was doubtless due to the arterio-sclerosis ; 3d, the paralysis, even that of the tongue, was entirely on the right side ; 4th, the fact that the tongue was protruded to the left, that is, to the non-paralysed side, seems rather exceptional ; 5th, that the paralysis was probably due to the hemorrhage into the pons, though it would be impossible to deny that paralysis might have been partly due to the hemorrhages into

the thalamus; 6th, the facial paralysis was on the same side as that of the arm and leg, and seems to be explained by the fact that the hemorrhage in the pons was below the decussation of the facial nerves; a similar remark may be made regarding the drooping of the right eyelid, namely, that the hemorrhage in the pons was below the decussation of the motor oculi nerve.

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### CASE OF SUCCESSFUL HIPJOINT AMPUTATION.\*

By D. PERCY HICKLING, M. D.,

Washington, D. C.

L. M., a white woman, age 44 years, entered The Washington Asylum Hospital August 16, 1903, suffering with pain over the left ovary, a specific vaginitis, tuberculosis and an ununited fracture of the left hip. On examination there was found to be about 3 inches shortening. She could not walk without the aid of two crutches, and complained that her leg was not only useless to her but was actually in the way; besides there was constant pain in her hip and knee; her pulse was 72, temperature 98, respiration 18, and she had a slight hacking cough.

She has a somewhat eventful surgical history which I consider it my duty to briefly call to your attention. As far as I know she first entered this hospital December 7, 1899, complaining of colicky pains in the abdomen accompanied by some tenderness in the right iliac region; there was a slight bronchitis, her lungs showing some consolidation; she also had an acute gastritis due to over indulgence in the use of stimulants. She left the hospital December 21, somewhat improved. She re-entered the institution December 29 for acute alcoholism, her general condition being about the same; her cough still continuing, and the pain in the right iliac region somewhat worse. She was discharged January 26, 1900, improved.

She re-entered the hospital February 4, 1900, with acute alcoholism, still complaining of pain in the right iliac region, which was tender to the touch and which had been frequently attended with severe colicky pains extending over the whole abdomen; she still had her cough and her respirations were slightly acceler-

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\*Reported with specimen to the Medical Society of the District of Columbia, October 28, 1903.

ated. She left the hospital February 17, somewhat improved. She re-entered the hospital March 8, and was discharged March 29, her condition and symptoms being the same.

Her next admission was April 26, 1900; the pain in the right iliac region was now so severe as to cause her to enter the hospital for this condition alone; her bowels were constipated and her general condition, owing to her life of dissipation, was far from satisfactory. May 20 I performed a laparotomy, and found a general tubercular condition of the peritoneum with adhesions of the caecum and ovary. The adhesions were carefully separated, the ovary and tube removed and the wound closed without drainage; she stood the operation very well, made an uneventful recovery and was discharged July 9, entirely free from any pain or tenderness in the abdomen. The ovary was found to be hardened and contracted, and the tube which had been removed with it was quite congested.

She next entered the hospital June 11, 1901, with an unimpacted fracture of the neck of the left femur. She had been drinking heavily. She stated that June 10 she had fallen in the street and found that she could not walk. She was placed in Buck's extension apparatus, and August 24 she left the hospital on crutches, with some shortening but with apparent union.

She was readmitted September 13, with her usual attack of alcoholism; she had also a small lacerated wound of the scalp; her lung condition had not improved, and her hip was causing her considerable pain and was of very little use, she being compelled to use two crutches continuously. On examination there was found to be two inches shortening, and the fracture had not united. October 12 I made an incision on the anterior surface of the thigh, over the outer end of the surgical neck of the femur, and another on the lateral aspect of the thigh, over the great trochanter; through these incisions I found no difficulty in bringing the bones in good position. I then thoroughly curetted the fractured surfaces with a sharp spoon curette, drilled a hole through the great trochanter and into the body of the neck of the proximal portion of the bone; this was easily done through the lateral incision; and through the anterior incision I found no difficulty in assuring myself of the direction which the drill was taking. I then introduced a silver screw three inches long, which brought the ends in perfect apposition



without any apparent deformity ; the limb, of course, was held in proper position by an assistant during the use of the drill and the introduction of the screw. The wounds were then closed and a plaster cast applied from the toes to a point well above the iliac crest. The wound healed without suppuration, and the cast was removed at the end of five weeks. This cast might have been removed much earlier, and when it was applied it was my intention to remove it about the second week or earlier, for, owing to her poor general condition, I was anxious to get her up and out into the open air as soon as practicable. Her condition, however, improved, and I decided to give her the benefit of time to repair her injury. After the cast was removed passive motion was used for knee and hip, and she was very soon able to get about on crutches and put considerable weight on the affected limb. She still suffered, however, some pain in hip and knee, which, instead of getting better, seemed to get worse. I therefore, December 21, removed the screw ; there was no sign of infection ; the wound was closed and the hip appeared to be in a satisfactory condition. (A skiagraph made at the Emergency Hospital through the courtesy of Dr. S. M. Burnett, while not very clear, yet showed the screw in the desired position and slightly bent.) The patient improved somewhat, and left the hospital April 24, 1902.

She next entered the hospital August 7, with a Colles fracture, which seemed to unite without any delay, and she was discharged September 18.

She was readmitted December 11, suffering from an acute attack of bronchitis ; she also complained of severe pain in her left hip, there was shortening of the leg and she had been compelled to walk with crutches. She was discharged at her own request December 19.

She last entered the hospital, August 16, 1903, suffering from a specific vaginitis and some pain over the left ovary ; she was very anxious to have something done for her leg, which was a source of constant pain and no use whatever ; in fact she said it was in her way. With a hope that I might still be able to place the bone in position, and by the aid of wiring or nailing, obtain a union, I made incisions, September 14, near the scars of the previous operation, but found that the neck had been entirely absorbed and that the acetabulum was filled with a dense fibrous tissue which did not give the sensation of bone. Knowing that she was not in

a physical condition to stand the prolonged treatment required for the formation of a false joint, I therefore closed the wound.

After her recovery from the immediate effects of the operation, I informed her that the operation would not prove of any benefit, and that I didn't know of any operation that would help the condition of her leg. She then begged me to take it off, so that she might be relieved of the useless and painful member. After consultation with Dr. W. P. Carr, of the Hospital Consulting Staff, I did a hipjoint amputation, October 10, after the method of Dr. John A. Wyeth. The patient did not lose an ounce of blood, although one of the pins was terribly bent, due, possibly, to the very heavy tubing that was used; this, however, was remedied by the assistant, Dr. Mitchell, holding the tubing in position. I must confess that, after securing all the arteries, I did not immediately follow Wyeth's method of putting in the deep muscular sutures and bringing the skin together before releasing my tourniquet. What I did was to place the two layers of deep muscular sutures in position, then released the tourniquet and inspected the arteries; I then tightened the deep sutures, inserted the skin sutures and applied the bandages, the only drainage employed being of gauze, which was brought out of the upper end of the wound.

Her present condition (October 28) is as good as you could expect from one whose general condition is so unpromising.

**Dr. Borden** said that cases of amputation at the hipjoint were very interesting, owing to the gravity of the operation. The surgeon had to combat sepsis, shock and hemorrhage. Ordinarily, the first was easily combatted by our modern antiseptic methods. Shock was also ordinarily easily controlled by modern methods, *i. e.*, by rapid operation, and by hypodermoclysis of salt solution. He referred to a case in which a patient's life was saved by the latter means; the operation was long and there was much shock and hemorrhage.

Hemorrhage was controlled in several ways. 1. By Wyeth's pin method,—an admirable method, the pin preventing the ligature from slipping off. 2. By Senn's method, which was different from all others. The procedure was briefly as follows: Make a lateral incision from above the greater trochanter downward to the bone; work across, in front of the trochanter; introduce long forceps, and cut down on it, thus making a hole through the limb in front of the femur. A similar course was pursued behind the femur. Rubber tubing was then introduced through the two

openings, and was tightened on the tissues in front of and behind the bone. The advantage of this method consisted in its simplicity; only one assistant was required; and it was efficient in controlling hemorrhage.

**Dr. Balloch** reported a case of hipjoint amputation for tubercular osteomyelitis of the femur, the disease extending two-thirds of the way up the bone. The patient had already undergone several operations in different places, including a resection of the knee, in the hope of securing relief. Hipjoint amputation was decided on at a consultation, and was performed. He used Wyeth's method, and found it very efficient; there was practically no loss of blood. The patient's recovery was uneventful.

**Dr. Carr** said that he saw Dr. Hickling's patient in consultation. He had expected that some one would criticise the amputation, because ordinarily the surgeon would not amputate a leg for fracture of that kind. Efforts to obtain union had, however, utterly failed, and it was evident that union would never occur.

He had several times operated on the hip in non-union cases. By smoothing off the neck of the femur and fitting it to the socket, pretty good results were obtained. In one case, a news-boy, the leg was shortened four inches, but the boy was able to run about without crutches, and had fairly good use of the limb. He had also treated several cases in which the head of the femur was shattered by gunshot wound. In most of these, he cut off the head of the bone, and fitted the neck in the socket, and good results were obtained. In Dr. Hickling's case, however, there was no possibility of union and the pain was great, hence Dr. Carr advised amputation.

## CASE OF DISEASE OF THE CAECUM.\*

By J. FORD THOMPSON, M. D.,

Washington, D. C.

Dr. Thompson, in presenting the specimen, said that the case was not one on which he surgically prided himself. No one had thought of disease of the caecum. There was a large nodular tumor in the right iliac region, which could also be felt per rectum. As the patient had suffered for two or three years with the condition, consent was readily obtained for an exploratory operation. At the operation, a condition was found which precluded the possibility of removing the growth; so much damage had been done that he could only do an anastomosis. The patient died four or

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\* Reported with specimen to the Medical Society of the District of Columbia, November 4, 1903.



five days later. He had never before met with this difficulty in caecal disease. The diagnosis was not made for some time after the abdomen was opened. He had intended to enucleate if possible, and repair the damage afterward; this, however, would have been a mistake; it would have been better to have performed the anastomosis at once, thereby prolonging the patient's life any way several months. The case was inoperable from a curative standpoint, and he undertook it only to prolong life and relieve the symptoms.

He had several times before operated in somewhat similar cases, but never had he found the caecum occupying such an inaccessible position; it could not be brought up within reach. The question is, What is best to do in these cases in order to prolong the patient's life? The condition is caused by malignant disease or tuberculosis; both are equally inoperable in certain cases. [He cited several cases in which much damage was done in an attempt to do a radical operation.] The operation of choice is enterectomy, cutting out the diseased portion and performing an anastomosis—a radical operation, but it can be done when the tumor is movable; it cannot be done if the opposite condition obtains, and the question arises as to the possibility of radical extirpation. When the tumor is movable and can be grasped it is best to extirpate for tuberculosis or malignant disease. If the tumor is fixed, extirpation is impossible, and the growth should be let alone and an anastomosis performed. What kind of anastomosis? It must be remembered that we are speaking only of inoperable cases. The old way was to take a loop above and below the growth, leaving the diseased tissue *in situ*. The objections to this method are that it leaves the diseased tissue as before; this tissue grows, ulcerates, and the patient soon dies of septicemia. Another plan is to cut the intestine above and below the lesion, and enclose the two openings, uniting the proximal and distal ends. This gives perfect exclusion, both ends being turned in, but it also gives ulceration and suppuration, and the patient dies of septic absorption.

In unilateral exclusion, the ileum is cut through at a convenient place, and an anastomosis is made. Then one end of the stump of intestine is attached to the abdominal wound and the other closed and dropped back in the abdominal cavity. Bilateral exclusion is to be preferred. Both ends of the stump are

attached to the abdominal wound, thus draining the diseased area. In all these cases surgeons prefer it, in tubercular as well as malignant disease. The advantages in the former are that one can flush by the shortest possible route, using a drainage tube, if desired, and putting the patient in the best possible condition for recovery. In the latter, it prevents the accumulation of septic fluids, and the patients live longer than after any other operation. In some cases of faecal fistula also, *e. g.*, after appendicitis, when adhesions make it impossible to do a clean operation, this method answers perfectly; it drains the fistula, and cures the patient. It is also applicable to fistulae in women, between the intestine and vagina. It is not suitable in disease of the upper rectum, as anastomosis is here impracticable. The bilateral operation is preferable to making an artificial anus in these conditions. A noted surgeon has said that it is better to let a man die than to make an artificial anus for his relief. This is not now believed, but nevertheless the surgeon should consider well and long before he condemns a patient to one for life. Anastomosis is easier, and preferable in every way, except in rectal disease where nothing else can be done.

He regretted that he had not recognized the fact that this case was surgically inoperable, and that he had not contented himself with the anastomosis; the diagnosis was not made until well along in the operation. Hereafter he would know better how to handle this class of cases. No one fixed rule can be laid down, but each case must be treated according to the conditions present. His opinion now is that after exposing the disease, the surgeon's desire to do something radical, and his great anxiety to help the patient, often lead him to do more than circumstances justify.

**Dr. G. Brown Miller** related a somewhat similar case, in the service of Dr. Kelly, of Baltimore. The tumor had arisen beneath the caecum, was as large as a man's head, and enclosed the head of the caecum and parts of the ascending colon and lower end of the ileum. The vermiform appendix protruded on the surface of the tumor. The tumor, which was a fibroma, was removed along with the caecum, appendix and parts of the colon and ileum. The ileum was anastomosed to the colon, and the ureteral ends likewise united (the ureter having been partly removed). The woman made a good recovery.

He was interested to find out just what Dr. Thompson's case was. The mucous membrane of the bowel was apparently not

involved, the tumor arising in the connective tissue beneath. In case it did not arise from the mucosa of the bowel or vermiform appendix it was probably a sarcoma or a fibroma. In the latter event, Dr. Thompson's attempt to remove it was not as unreasonable as he (Dr. Thompson) was inclined to think.

**Dr. Bovée** said that the specimens were very interesting, and he had enjoyed particularly the pointed remarks of Dr. Thompson. He could not agree with him, however, as to the best operation for fistula between the intestine and vagina after hysterectomy. The best treatment was the use of packing and irritants to secure contraction. In most cases section of the bowel was unnecessary.

Dr. Bovée had attempted to operate in several cases of sarcoma of the intestine and mesenteric glands, and the conditions found could not be adequately described; the intestines and tissues were matted into a mass by adhesions; a mere touch was enough to start a bleeding which required the use of the cautery. Operation under these circumstances was a formidable undertaking, and he appreciated Dr. Thompson's position in the case reported.

The difficulty in making a diagnosis of malignant growth in this region was often very great. In one case that came under his observation, there was apparently malignant disease, but the case turned out to be one of fat necrosis. Nothing was done other than to open the abdomen, take out a piece of the growth for examination, and close the wound; the man made a complete recovery. In another case, what was supposed to be appendicitis was really a large, round, hard tumor, like a fibroma of the uterus. On opening the abdomen he found what he supposed was a sarcoma of the mesentery. The case was really, however, neither one nor the other; it was a tubercular peritonitis located in the lower abdomen; it presented a cocoanut-like tumor, due to adhesions. The woman recovered.

**Dr. Thompson**, in closing, said that a simple, or limited, fistula needed no such treatment as he had described; but severe ones do, such, for instance, as sometimes occur after appendicitis. The simple cases were easily treated and cured without operation, but severe ones often required a most careful operation.



## CASE OF GUNSHOT WOUND OF BRAIN; LODGEMENT OF BULLET.\*

By WILLIAM C. BORDEN, M. D.,

Surgeon and Major, U. S. Army.

Private J. S. P., of the 9th Infantry, was accidentally shot by a firing party at about 500 yards range, at Stoney Point Rifle Range, New York, July 23, 1903, the bullet ricocheting on retretment timber and striking the patient, who was in the target pit.

Operation under chloroform and ether anesthesia with antiseptic precautions the same day. Numerous bone splinters removed from entrance wound, branch of cerebral artery ligated and wound closed with silk-worm-gut. For an unstated reason the surgeon supposed the bullet was lodged in the anterior cerebral fossa. A trephine opening was made two inches above the left external angular process of the frontal bone; the brain found lacerated, but the bullet not found. Scalp wound closed by silk-worm-gut and wound dressed antiseptically.

The patient arrived at the hospital, Washington Barracks, D. C., September 24, 1903, with the above history, and himself gave the following history: Was shot by a Krag-Jorgensen bullet at about 500 yards; the bullet struck the ground and ricocheted through a two-inch pine plank; the patient was unconscious four days. Six hours after injury he was operated on, and ten or twelve days later was X-rayed. After operation there was noticed almost complete paralysis of sensation on left side of face and in left arm and leg, but no motor paralysis except of thumb and index finger of left hand which were almost totally paralyzed; he could not easily masticate food and had constant driveling from left corner of mouth. The impairment of sensation soon began to improve.

He complained of more or less constant pain in right side of head; difficulty in vision at a distance; blurring of objects; partial paralysis of motion and sensation of thumb and index finger of left hand; driveling out of left corner of mouth, especially during eating; difficulty of hearing in right ear.

The scar from the wound and operation was 2½ inches long, directly over left ear, running directly upward toward vertex of

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\* Reported with patient to the Medical Society of the District of Columbia, November 4, 1903.

skull. Another scar from operation,  $2\frac{1}{2}$  inches long, extending from a point one inch above outer extremity of left eyebrow upward and backward toward vertex of skull. Diminished sensibility of skin of left thumb and forefinger and left side of tongue. Examination of eyes shows vision practically alike in each. V=15-20. Hearing right ear, 18-36; left ear, 36-36.

October 1.—Patient sleeps only from four to six hours, and complains of almost constant headache, located generally in frontal or right parietal regions.

**Dr. Borden**, in presenting the case, said that it was of particular interest as showing the slight effects in some cases of lodged missiles in the brain. All had heard much about the effects of the modern small-caliber bullet; this was a case in point. He read the case-history, and exhibited the patient and radiographs. In spite of the severity of the injury, the man had surprisingly little disability, and was improving in every way.

He related a similar case which occurred in the recent Spanish-American war; the bullet lodged within a fraction of an inch of the spot occupied by the bullet in this case; here also there was comparatively little disability, the man rapidly recovering; he was now doing good work in the Civil Service Commission. These cases illustrated the fact that the modern bullet sometimes does little damage. That this was the rare exception, however, was seen from the statistics of recent wars, in which the mortality from shot wounds equaled, or even exceeded, that of the civil war. The humane qualities of the modern missile had been much over-rated. There was a large mortality in the Anglo-Boer war in spite of modern aseptic methods. Why? It could only have been due to the fact that the modern bullet caused more tissue destruction than did the old ball.

Penetrating gunshot wounds of the head have a high mortality; he read statistics in support of this statement. Penetrating wounds of the abdomen furnished the highest mortality; next, penetrating wounds and fractures of the spine, and then penetrating wounds of the head. These three gave a tremendous mortality. The case also showed that surgeons should not rush in and operate sooner than circumstances justified. This happened after gunshot wounds, time and again. The surgeon was too anxious to do something on indefinite indications. The question arose whether it was advisable to operate on this man now. By no means, because he was doing well and there was no indication for surgical interference. One should always try, when possible, to locate the missile by X-rays.

**Dr. W. B. Banister** referred to the explosive effects of the modern bullet. In shots fired within a range of 500 yards, death

might be expected from disorganization of the tissues. This man's life was saved by the two-inch plank which prevented the explosive effect. As regards the comparative effects of the modern and old balls in perforating wounds of the intestines, not a case was saved in the civil war; death was due to leakage, etc. With the modern missile, the patient might die or not. In both cases, however, there was a higher mortality when the small, rather than the large, intestine was perforated.

**Dr. J. Ford Thompson** said the case was interesting as illustrating the difference in practice and results between civil and military surgery. He had seen several cases of lodged bullet in the brain, with recovery of the patients. The first case was seen with Dr. Winter, the second with Dr. Millard Thompson, and the third with Dr. Wells Herbert. In all three the wound was carefully probed, and all the patients recovered. In one, the bullet lodged near the base, and caused convulsions for two or three weeks. In the second, the wound was in the forehead over the nose; the patient never had a symptom, and on the fifth or sixth day the mother took the child shopping with her. Should such wounds be probed? It might be wrong in military practice, but it was all right in civil life. He mentioned an interesting case seen recently at Luray. The man had been shot from behind a door. Symptoms of meningitis developed, and he probed the wound, as had the local physicians before him. On impact, the bullet had split into two parts, one-third not penetrating, and the rest entering the brain for about an inch, with spicula of bone; these he removed. Later, he was informed that the man was not doing well; he therefore had him brought to Washington, performed an operation at Garfield Hospital, and found a pocket of pus. The patient died six weeks afterward. An interesting fact was, that at the trial, the lawyer for the defense made it out that the physicians had killed the man by probing the wound and by the use of a catheter which was stuck in the wound before Dr. Thompson saw the patient. Reasonable probing was justifiable, and if the bullet was found, it should be removed, and the wound drained. A comparison with conditions existing in the civil war was not fair; men then died by hundreds merely if touched with the knife. It was not due to the surgery; they would have died if left alone. He thought it bad practice to merely dress the wound, and leave the result to chance. Reasonable exploration should be done, trephining on the same or on the opposite side, if necessary, and removing the missile if found and circumstances permitted.

**Dr. Borden** expressed gratification that the case had brought out such an extended discussion. He referred to the similarity between military and civil surgical procedure. The principles in both were the same, the difference in practice being only altered by existing circumstances. The procedure varied according



to the conditions present. The military surgeon practiced non-interference in cerebral and abdominal cases for one main reason only—because he could not control his asepsis. If, by reason of his environment, he found that he infected every wound of the kind into which he inserted his finger, it would be criminal for him to persist in the practice. If no such danger existed, it would be criminal for him not to interfere. There was no difference in the principles of military and civil practice; but circumstances altered cases. These remarks applied to cerebral as well as abdominal surgery. Probing the brain might do much good, but, on the other hand, it might be productive of harm; by breaking down nature's protective wall, it might lower the resistance of the tissues, and pave the way for infection. There was hardly a case on record, in the civil war, in which interference was not practiced; all such were infected, and only a very few of the patients recovered. It was a mistake to get the impression that there was any radical difference between surgical procedure in civil and in military practice; the principles in the two were exactly the same, whatever difference there was being due solely to circumstances.

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## TWO CASES OF RUPTURE OF PUERPERAL UTERUS.\*

By W. SINCLAIR BOWEN, M. D.,

Washington, D. C.

Case I.—July, 1902, I was called in consultation to see a patient who had just been delivered in Georgetown University Hospital. The delivery was manual by podalic version. I found a tear of the cervix on the right side extending up the side of uterus into the peritoneal cavity. The laceration was sutured with kangaroo tendons, and convalescence was uneventful.

Case II.—Rupture of uterus during labor with twins; the second child delivered with forceps; tear on left of cervix extending high up into peritoneal cavity. Was called in consultation, and examined patient the day following labor. Found a coil of intestine in the vagina and twisted upon itself so that it could not be returned through the rupture. The bowel was in rather bad condition. Laparotomy with return of bowel and gauze drain into vagina was done; the injured bowel packed around with gauze drain. The gauze was packed tightly in the rupture and entirely controlled all hemorrhage from that source. The patient died 18 hours after operation.

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\* Reported with specimens to the Medical Society of the District of Columbia, October 21, 1903.

## CASE OF REMOVAL OF UTERINE FIBROID.\*

By J. TABER JOHNSON, A. M., M. D., Ph. D.,

Washington, D. C.

Mrs. B., aged 50, white, mother of three children, has been suffering from pressure symptoms in the pelvis and from gradually increasing hemorrhages for the past three years. She had been treated for the past ten years in the country for womb disease; had only known she had a tumor for one year.

She was sent to me last week by Dr. O'Brien, of Alexandria, with the statement that he and other physicians had been unable to control her hemorrhages.

I suggested the removal of the tumor as the surest and quickest mode of relief. The patient and her husband agreed with me, and went at once to the Georgetown University Hospital, where I performed supra-vaginal hysterectomy on last Saturday morning, in the presence of the students and Drs. O'Brien, Vaughan and others. The fibroid enlargement of the uterus, while not large, was the cause of her troubles, and she is well rid of it. Connected with the right appendage there is a cystic tumor the size of a turkey egg.

The operation was easy, quick, and the convalescence has so far been uneventful. She is now completing her fifth day.

Dr. Bovée thought the cyst belonged to the broad ligament. The case emphasized the fact that these fibroids of the uterus do cause trouble after the menopause.

## CASE OF APPENDICITIS.\*

By W. SINCLAIR BOWEN, M. D.,

Washington, D. C.

I was called to see Dr. R. H. Graham in August last, and found him with typical symptoms of acute appendicitis on the fifth day of the disease. Dr. Vaughan was called in consultation, and we both advised operation, which was performed the same evening. The patient's general condition was good, temperature and pulse but slightly above normal, but obstinate con-

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\* Reported with specimen to the Medical Society of the District of Columbia, October 21, 1903.

stipation had existed for three days, in spite of active medication by the Doctor himself. A free incision was made along the outer border of rectus muscle and the appendix was easily brought up into the wound, there being no adhesions; it was removed without difficulty; was much enlarged and distended, containing several concretions; and the meso-appendix was greatly thickened. The patient did splendidly for twenty-four hours, and then began to vomit and continued to vomit until his death, four days after the operation. It was impossible to secure a movement of the bowels. The temperature was normal the day following the operation and remained so afterward.



REPORT OF COMMITTEE ON THE DEATH OF DR.  
ROBERT H. GRAHAM.\*

DR. ROBERT HENDERSON GRAHAM was born January 29, 1849, at Yellow Springs, Green County, Ohio. He graduated in Medicine in Columbus, Ohio, and practiced there ten years; moved to Washington fourteen years ago, and continued to practice his profession until his death, August 24, 1903.



WHEREAS, We have learned of the sudden and untimely death of Dr. Graham,

*Resolved*, Therefore, that in his death the profession has lost an earnest worker and valuable member, his family a devoted husband and father, and the community a useful citizen.

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\*Adopted by the Medical Society of the District of Columbia, October 21, 1903.

*Resolved*, That we extend to his sorrowing family our deepest sympathy, and send to them a copy of these resolutions.

W. SINCLAIR BOWEN,

D. OLIN LEECH,

W. M. SPRIGG,

*Committee.*

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## REPORT OF COMMITTEE ON DEATH OF DR. SAMUEL JACOBS RADCLIFFE.\*

DOCTOR SAMUEL J. RADCLIFFE, one of the oldest members of our Society, died at his home, 2733 P Street, at 2 o'clock on the morning of the 9th of July, 1903, in the seventy-fifth year of his age.

His death was caused by a complication of diseases, due mainly to a weak heart.

He was interred in the Arlington Cemetery with military honors.

Doctor Radcliffe was born in this city January 2, 1828, and was educated in our schools and by private tutors. He began the study of medicine at the age of twenty, in the office of Doctor Flodoardo Howard, of this city, and graduated from the Medical Department of Georgetown University in 1852.

In 1857 he removed to Baltimore, where he practiced medicine for five years, during which time he attended several special courses and clinics at the University of Maryland.

In 1862 he was appointed an Acting Assistant Surgeon in the Army, and later on received a commission from President Lincoln. He served with the Army of the Potomac in the 5th Army Corps, under General Warren, through all the battles from Brandy Station to Petersburg. He was soon promoted to the rank of Major and Surgeon, and while on duty in North Carolina, was made Medical Director of the 23d Army Corps, with rank of Lieutenant Colonel. He was honorably discharged from the Army at the end of the war in October, 1865, when he resumed his practice in this, his native city.

In 1866 he received the degree of Master of Arts from the Georgetown University.

For nearly twenty years he was an Acting Assistant Surgeon in the Army, stationed in this city, and later on an Examining Surgeon for the Pension Office for four years.

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\* Adopted by the Medical Society of the District of Columbia, October 21, 1903.

Doctor Radcliffe was a member of the American, and of the British Medical Associations, of the Medical Society and Association of this city, of the Washington Academy of Sciences, and of the Washington Microscopical Society. He wrote many articles for the medical press.

His wife (a daughter of Doctor Joshua R. Riley, of Georgetown, and a sister of the late Doctor John R. Riley, of this city), and two daughters survive him.

This is an unusual record, and is one of which we, his surviving fellow members, may justly feel proud, and it is fitting that we should stop the usual proceedings of our Society for a few moments, in which to show our reverence for the character and record our appreciation of the virtues of our departed fellow member.

Seventy-five years an upright citizen, and fifty-one years an honorable practitioner of medicine, is a record that few of us will have the opportunity to attain. May we all, who survive him, find inspiration in the contemplation of his long and highly honorable career, and find additional incentives to emulate so creditable an example.

In accordance with a resolution unanimously passed at a meeting of the Medical Society of the District of Columbia, held on the 7th instant (1903), the undersigned committee respectfully present the following preamble and resolutions for your adoption at this meeting :

WHEREAS, By the inscrutable decree of Divine Providence, we have lost in the death of DOCTOR SAMUEL J. RADCLIFFE, one of our oldest and most honorable and conscientious members, who for more than fifty years, practiced our profession, without a stain upon his character, therefore, be it

*Resolved*, That we enter upon our records, this minute, of our lasting regret at his death, and our deep appreciation of his abilities, patriotism, and long life of devotion to the best interests of his profession, his city and his family.

*Resolved*, That a copy of this report, preamble and resolutions be sent to his bereaved family.

JOS. TABER JOHNSON,  
SAMUEL S. ADAMS,  
T. N. VINCENT,  
*Committee.*



REPORT OF THE COMMITTEE ON THE DEATH OF  
DR. JOSEPH WELLS HERBERT.\*

The Committee of the Medical Society of the District of Columbia, appointed to prepare resolutions on the death of Dr. J. Wells Herbert, respectfully submit the following :

WHEREAS, It has pleased the Almighty to recall DOCTOR J. WELLS HERBERT, who was for forty-three years a member of this Society ; and



WHEREAS, He was a man of upright and noble character, honored by his colleagues as a physician, ever courteous, punctilious in the observance of ethical rules, alert to recognize the advances of science and successfully apply them with his wide and ripe experience, and esteemed by his patients as an adviser, skillful, solicitous and tactful :

THEREFORE, As an evidence of respect for his sterling qualities

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\* Adopted by the Medical Society of the District of Columbia, November 4, 1903.

as a man and as a physician, and to express our feeling of loss of a friend and our sympathy for his family in their bereavement—

*Be it Resolved*, That in the death of Doctor J. Wells Herbert, on October 21, 1903, the Medical Society of Washington, D. C., and the community have lost a member whose virtues will live in the memory of his friends and the hearts of his patients; and

*Be it Resolved*, That these resolutions be spread in full upon the minutes of this Society and communicated to his family.

FREDERICK SOHON,

JOHN F. MORAN,

JOSEPH T. HOWARD,

*Committee.*

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## REPORT OF THE COMMITTEE ON THE DEATH OF DR. WM. A. CALDWELL.\*

WM. A. CALDWELL was born in West Virginia September 29, 1862, and died June 6, 1903, in the 41st year of his age.

He was of Scotch-Irish descent—his great-grandfather having been a Revolutionary soldier, and one of the first settlers about Fort Henry, now the city of Wheeling.

Dr. Caldwell was educated in the public schools of his native county, and for a time thereafter devoted himself to business interests; subsequently teaching school during the winter and attending college in the spring and autumn. He studied medicine with Dr. John L. Dickey, of Wheeling, completing his medical education at the Columbian University of this city. He served two years as resident physician in the Garfield Memorial Hospital and the Columbia Hospital, and later became Professor of Nervous and Mental Diseases in the National Medical College.

He married Miss L. Kate English, of Frederick, Md., who, with one daughter, survives him.

In the spring of 1899 his health became so much impaired from pulmonary tuberculosis that he abandoned his practice here and sought relief in the Adirondacks and other places, from which he returned much improved.

Later he returned to his native State, and in 1901 he was elected to the Chair of Anatomy and Physiology in the West

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\* Adopted by the Medical Society of the District of Columbia, November 4, 1903.

Virginia University, at Morgantown, which he filled for the brief period preceding his death.

Your Committee recommend the adoption of the following resolutions :

*Resolved*, That this Society deplores the death of Dr. Wm. A. Caldwell, occurring, as it did, at a comparatively early age, and commends the energetic activity and professional life which the foregoing history indicates.

*Resolved*, That this history and resolutions be inscribed on the minutes, and a copy of the same, under seal of the Society, be forwarded to his family.

C. W. FRANZONI,

D. S. LAMB,

J. S. WALL,

*Committee.*

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## REPORT OF THE COMMITTEE ON THE DEATH OF DR. A. B. RICHARDSON.\*

ALONZO BLAIR RICHARDSON was born on a farm in Scioto County, Ohio, September 11, 1852. He obtained his early education in the village schools. At sixteen years of age, he was already a teacher. A few years later, he attended the Ohio University at Athens, reaching the junior grade, but not graduating. On leaving college, he journeyed to Cincinnati, where he began his medical course in the Ohio Medical College. He made one year in that institution, and then went to New York, finishing his medical course at the Bellevue School, from which college he gained his degree in medicine, 1876. Immediately after his graduation he received an appointment as assistant physician in the Athens Asylum for the Insane. During the autumn of 1876, he married Julia D. Harris, who survives him. He remained a medical officer at the above mentioned asylum for a period of three years, when a change in politics caused his resignation. He returned one year later, 1880, to this asylum as its superintendent. In the interval, Dr. Richardson practiced medicine in Portsmouth, Ohio. He retained the position of Superintendent of the Athens Asylum for the period of ten years, 1890, when

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\* Adopted by the Medical Society of the District of Columbia, November 4, 1903.



again a change in politics caused his resignation. Again we find him in Cincinnati, where he entered private practice as a specialist on nervous and mental diseases. At the urgent request of the Honorable William McKinley, then Governor of Ohio, Dr. Richardson assumed charge of the Columbian Hospital for the Insane, 1892. During his superintendency of this hospital he was actively interested, first in locating, and secondly in preparing plans and the prosecution of those which resulted in the New Eastern Ohio Hospital for the Insane, located at Massillon, Ohio. On the completion of this hospital he was requested by Governor Bushnell to become its first superintendent. This offer was accepted. One year later, 1899, he came to us through his appointment as Superintendent of the U. S. Hospital for the Insane, succeeding the late Dr. W. W. Godding.

Dr. Richardson's life was always ardent, vigorous and rounded out with laborious hours. He found ample time during his busy life to impart knowledge to others. He lectured on mental and nervous diseases at Ohio Medical College, at the Starling Medical College, at the Medical Department of the Columbian University, Washington, D. C., and gave clinical lectures to the students of Columbian and Georgetown Universities. He was a member of the American Medical Association, the New York Medico-Legal Society, and President of the American Medico-Psychological Association.

We all knew Dr. Richardson ; his pleasant personality, his genial manners, his kindly assistance in consultation, his quiet dignity, his ever wide and deep grasp of his subject, his marvellous executive ability.

WHEREAS, Alonzo Blair Richardson, a distinguished physician, was called to his rest by an all-wise God on June 27, 1903 ; and,

WHEREAS, Although not a member of the Medical Society of the District of Columbia, yet, through his frequent attendance, assistance and frequent and interesting discussion of medical papers and subjects at our meetings, and through his courteous manners and dignified demeanor, he endeared himself to all the members of this Society, therefore

*Be it Resolved*, That the Medical Society of the District of Columbia gives expression to its feeling of loss in the death of our colleague, and that it extends its sympathy to the bereaved widow and family. Furthermore

*Be it Resolved*, That these resolutions be spread upon the minutes of this meeting.

G. L. MAGRUDER,  
CHARLES W. RICHARDSON,  
J. C. MCGUIRE,

*Committee.*

## PROCEEDINGS OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

**Wednesday, Oct. 7, 1903.**—The President, Dr. Kober, in the Chair. Over 55 members present.

Dr. D. Olin Leech, for the Board of Censors, reported favorably on the applications of the following candidates for active membership, and they were elected :

Dr. J. Lee Adams, Dr. Henry M. Dixon, Dr. Samuel Fry, Dr. C. Norman Howard, Dr. Wm. Bernard Johnston, Dr. S. R. Karpeles, Dr. Albert L. Lawrence, Dr. Walter H. Merrill, Dr. D. V. Mulcahy, Dr. Anthony M. Ray, Dr. Laura M. Reville, Dr. W. B. Strickler, Dr. Gustav Werber.

The Board of Censors also reported favorably on the applications of the following candidates for membership by invitation, and they were elected :

Drs. R. L. Sutton, A. G. Greenwell, C. F. Stokes and J. L. Taylor, of the U. S. Navy ; and Drs. H. P. Birmingham, Jesse R. Harris, C. L. Heizmann and H. A. Shaw, of the U. S. Army.

The Treasurer presented his report for July, August and September, as follows : Received—Interest, \$17.24 ; assessments, \$20 ; total, \$37.24. Disbursed—MED. ANNALS, \$238.91 ; Recording Secretary, \$50 ; stamps, \$12 ; total, \$300.91.

The Chair announced that the following members had died during the recess of the Society : Drs. Samuel J. Radcliffe, M. Brückheimer, Robert H. Graham and W. A. Caldwell. The Society had also lost by death Dr. A. B. Richardson, a distinguished and faithful attendant at the meetings of the Society.

The Chair appointed committees as follows :

On the death of Dr. Richardson—Drs. Magruder, C. W. Richardson and McGuire.

On the death of Dr. Radcliffe—Drs. J. Taber Johnson, S. S. Adams and Vincent.

On Dr. Brückheimer—Drs. A. Behrend, Hardin and Grasty.

On Dr. Graham—Drs. Bowen, Sprigg and D. Olin Leech.

On Dr. Caldwell—Drs. Franzoni, D. S. Lamb and Wall.

Dr. McCormick, for the Milk Commission, presented a report. See page 251.

Dr. G. Wythe Cook asked by what authority from the Society the committee had taken out articles of incorporation ; also

whether this step would not lead to difficulties, both on the part of the Society and the committee. It was an incorporated body within an incorporated body, and as such it was entirely independent of the Society.

The question was discussed by Drs. McCormick, Kober and Sprigg, after which the report was referred to the Executive Committee.

Dr. Woodward resigned as a member of the Milk Commission, and the Chair appointed Dr. J. B. Nichols in his place.

Dr. T. A. Claytor read the paper of the evening—"Multiple Sarcoma." Discussed by Drs. Carr, Shands, I. S. Stone, Vale, Bishop and Carmichael. [N. P. Barnes, Acting Secretary.]

**Adjourned Meeting, Wednesday, October 14.**—Dr. Kober, President, in the chair. Over 45 members present.

Dr. D. Olin Leech, for the Board of Censors, reported favorably on the applications of the following candidates for active membership: Drs. Edgar D. Thompson and Oscar Wilkinson, and they were elected.

Dr. Ales Hrdlicka, Curator of Physical Anthropology, U. S. National Museum, was elected a member by invitation.

**Regular Meeting, Wednesday, October 14.**—The following cases and specimens were reported:

By Dr. Mary A. Parsons: Uterus, with Fibroids. Discussed by Drs. Bovée, Reyburn, J. Taber Johnson and I. S. Stone. See page 322.

By Drs. D. S. Lamb, Hrdlicka and Kerns: Cerebral Hemorrhage. Discussed by Dr. Bishop. See page 333.

Dr. Frank P. Vale read the paper of the evening: A Brief Note on the X-Ray Treatment of Glandular Tuberculosis. Discussed by Drs. Nichols, Shands, Kober, Chappell, J. Ford Thompson, Reyburn, Bishop and A. F. A. King. See page 324.

[N. P. BARNES, *Acting Secretary.*]

**Wednesday, October 21.**—The President, Dr. Kober, in the chair. 74 members present.

The Memorial to Dr. Samuel J. Radcliffe was read by the Chairman of the Committee, Dr. J. Taber Johnson. See page 350.

The Memorial to Dr. R. H. Graham was read by the Chairman of the Committee, Dr. W. Sinclair Bowen. See page 349.

The resolutions were adopted.

The President announced the death of Dr. J. Wells Herbert, and appointed the following Committee to take suitable action: Drs. J. F. Moran, J. T. Howard and Frederick Sohn.

Dr. Fry reported the following cases and specimens:

1. Diseased appendix. Discussed by Drs. I. S. Stone, Vaughan, G. B. Miller and Bovée.

2. Ruptured Uterus.
3. Ruptured Pus Tube.
4. Ectopic Pregnancy. Discussed by Dr. Bovée.

Dr. Bowen reported a case of diseased appendix, and ruptured uterus. See page 346-7.

Dr. J. Taber Johnson reported a case of uterine fibroids, with specimen. Discussed by Dr. Bovée. See page 347.

Dr. Fry read the paper of the evening: "Caesarean Section in the Treatment of Placenta Praevia." Discussed by Drs. Moran, A. F. A. King, W. G. Morgan and Kober.

[N. P. BARNES, *Acting Secretary.*]

**Wednesday, October 28.**—Dr. B. G. Pool, Vice-President, in the chair. Over 43 members present.

Dr. Hickling presented a case of "Successful hipjoint Amputation." Discussed by Drs. Borden, Balloch and Carr. See page 335.

Dr. McLaughlin read the paper of the evening. Subject, "The Range of Radio-therapy in the Treatment of New Growths." Discussed by Drs. Bishop, Hickling, Carr, A. F. A. King, Borden, Abbe, and Mary A. Parsons. See page 313.

**Wednesday, November 4.**—Dr. George M. Kober, President, in the chair. Over 50 members present.

The Treasurer's report for October: Received from assessments, \$684.00; entrance fees, \$25.00; initiation fee, \$1.00; total, \$710.00. Disbursed: Janitor, \$20.00; binding transactions, \$1.25; printing, \$2.00; reprints, \$10.55; total, \$43.80.

Dr. Sohon read the report of the Memorial Committee on the death of Dr. J. Wells Herbert. The report and resolutions were adopted. See page 352.

Dr. Franzoni read the report of the Committee on the death of Dr. William A. Caldwell. The report and resolutions were adopted. See page 353.

Dr. G. L. Magruder, for the Executive Committee, reported that it had considered the proposed amendment to the Constitution offered by Dr. D. S. Lamb, with reference to counting ballots, and had decided that the change would be unwise.

Dr. Magruder read the report of the Committee on the death of Dr. A. B. Richardson. The report and the resolutions were adopted. See page 354.

The following cases and specimens were presented: By Dr. J. Ford Thompson, Disease of the Caecum; discussed by Drs. G. Brown Miller, Bovée, and Carr. See page 339.

By Dr. Borden, Gunshot Wound of Brain; Case and Radiographs. Discussed by Drs. Banister and J. Ford Thompson. See page 343.



## Medical Miscellany.

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**Bacterium Truttae—A Pathogen to Fishes—U. S. Fish Commission.**—Mention was made in the first number of the ANNALS of a bacterial disease in trout. The organism which is the cause has been since described as *Bacterium Truttae* in *Bulletin of the U. S. Fish Commission* for 1902. Its characters may be briefly summarized here. It exhibits a marked pleomorphism, the typical form within the trout being a distinct rod, while in liquid media the rods are smaller and shorter, and on solid media it develops as a coccus. It takes readily the ordinary stains. It is chromogenic, with a characteristic reddish-brown color, which diffuses in the nutrient medium and, on agar, becomes visible usually on the third day. It liquefies gelatine and blood serum, scarcely multiplies on potato, grows in milk without coagulation, reduces nitrates, but does not produce indol nor ferment the sugars. It is non-motile when freshly isolated, but after a long time on media it has a doubtful motility, which staining methods failed to verify by demonstrating flagella.

It is pathogenic to trout, and causes a fatal disease in domesticated brook trout. It grows best at room temperatures, and has a low thermal death point—between 42 C. and 43 C. for an exposure of 10 minutes, while 37½ C. kills it in 17 hours. It is probably, therefore, not pathogenic for any warm-blooded animals.

M. C. MARSH.

**Central Dispensary and Emergency Hospital.**—Dr. E. L. Tompkins, for many years in charge of the clinic for nervous diseases, having resigned on account of absence from the city, Dr. A. R. Shands was elected to fill his place on the staff. In this new arrangement, Dr. Shands was placed in charge of the clinic for children and orthopaedics, and the clinic for nervous diseases was placed under the general medical clinic, where it formerly belonged. Dr. Wm. L. Robins was continued as associate in charge of the clinic for nervous diseases, and Dr. Ada R. Thomas was appointed associate to the clinic for diseases of children and orthopaedics. Dr. E. W. Reisinger was appointed associate to the clinic for general medicine. The aggregate of the work done for the last quarter has exceeded that of any similar period

in the history of the hospital, particularly in the matter of house patients. The attendance by the students on the clinics has also been larger than usual and the material is being used to great advantage.

SWAN M. BURNETT.

**A Text-Book of the Diseases of Women.** By THOS. A. ASHBY, M. D., Professor of Diseases of Women, University of Maryland, &c., &c. WILLIAMS AND WILKINS COMPANY, Baltimore, Maryland.

This octavo volume of nearly 700 pages contains 223 illustrations, a large number of which were made by artists F. S. Lockwood and H. M. Brent, mostly from the author's specimens, operative methods, etc. The book is written by a man rich in experience both as a practical and as a teaching gynecologist, and for the general practitioner and the student of medicine. It will prove a useful book for both, and particularly for Dr. Ashby's students in the University of Maryland. Its descriptions in type as well as in cuts are good. Among many valuable points in the subject matter one can but note his plea for the co-operation of school teachers and others in charge of girls in causing them to acquire habits of life regarding regulation of the bowels and bladder. Another point is his extreme limitation of Alexander's operation for retro-displacement of the uterus. The fifteen pages of "History of Gynecology" is very interesting reading. There is a field for books of this nature in medical literature, especially when prepared by such conservative writers as the author of this volume.

J. W. BOVÉE.

**The Doctor's Recreation Series.**—A series of twelve publications under the above title, is announced by the SAALFELD PUBLISHING COMPANY. The following are the titles of the individual books, several of which are probably by this time already issued :

Volume I, *The Doctor's Leisure Hour* : Facts and Fancies of Interest to the Doctor and His Patient. Arranged by Porter Davies, M. D.

Volume II, *The Doctor's Red Lamp* : A Book of Short Stories Concerning the Doctor's Daily Life. Selected by Charles Wells Moulton.

Volume III, *In the Year 1800* : Being a Relation of Sundry

Events Occurring in the Life of Dr. Jonathan Brush During that Year. A Novel, by Samuel Walter Kelley, M. D.

Volume IV, *A Book About Doctors*: By John Cordy Jeaffreson, author of "The Real Lord Byron," "The Real Shelley," "A Book About Lawyers," etc., etc.

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# WASHINGTON MEDICAL ANNALS

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## NOTES ON THE PHYSIOLOGIC AND THE THERAPEUTIC ACTION OF RADIUM.\*

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It is a little early as yet to make any definite statements as to the positive value in medical lines of the radio-active bodies that have been known as such in the scientific world only since the discoveries of Henri Becquerel and Madame and Monsieur Curie, beginning in 1896. Undoubtedly, we of the present generation shall make many mistakes in the interpretation of the results of the action of these new substances, but some of the facts so far developed seem significant enough to be presented collectively to the medical profession. The preparation of these substances from their ores, and the problems in physics that they have introduced, we must to a large extent leave to the chemists and the physicists, though we may need to consider a few of them.

That one of the radio-active bodies which is by far the most active of the group, and which is the source of the chief interest, is radium. The others—actinium, polonium, uranium and thorium—have not yet come into prominence in medical circles. Radium as a metallic element has not yet been isolated, but exists only in the form of its haloid salts, the chloride or bromide, and even these salts have not been obtained free from impurities. Radium has the same chemical characteristics as barium, and it is with barium that the radium salts are combined. The product of the Société Central de Chimique, in Paris, which manufactures radium according to the methods of the Curies, puts its products on the market as "chloride of barium and radium," of a given activity, depending on the proportion of radium to the barium. The activity of the preparation is estimated by the rapidity with

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which the salt will discharge a gold-leaf electroscope. The standard or unit of time is that required by metallic uranium for the discharge of such an electroscope. If another preparation will discharge the instrument in half the time, its strength is taken as two; if it will discharge the instrument in one-hundredth of the time required by the uranium, the strength is called one hundred; if in one thousandth of the time, the strength is taken as one thousand. As the time required for the discharge of the apparatus by the uranium is only a few seconds, or at most minutes, it follows that when that time becomes divided by thousandths and hundreds of thousandths the errors become very great; therefore the Germans have not considered such a gradation as at all satisfactory, and have not attempted to assign any such definite strength to their preparations. They prefer to grade them, rather, as strongest A, weaker B, and so on.

The comparative activities of different specimens may also be shown by the ability they have to produce fluorescence in other bodies. The luminosity of any given specimen is not indicative of its activity, for the mixture of a radium salt with certain other substances markedly increases its luminosity, as is shown in one of the German specimens belonging to the Smithsonian Institution. This specimen is distinctly more luminous than any of the other specimens, in marked contrast to the 300,000 specimen, though the German specimen is probably not more than 2,000. The fluorescence produced by the action of the radium preparations on the barium-platino-cyanide screen which is used in the X-ray fluorescence work, shows, however, the marked difference between the activities of the different specimens. A specimen of 240 activity scarcely affects the screen, and put behind the screen so that its rays must penetrate the paper before reaching the fluorescent substance has almost no effect. The 2,000 specimen produces a distinct fluorescence on the screen, but its effects are scarcely more perceptible through the screen; the 7,000 specimen produces a marked fluorescence both in front of and through the screen. The 300,000 specimen produces a marked lighting up of the entire screen when held a couple of inches in front of it, and a large luminous area when held behind the screen, even when encased in lead foil, 2 millimeters thick, and held behind the screen. In fact, when a slab of marble three centimeters thick is held between the radium and the back of the screen the fluor-

escence of the screen is still distinctly visible. Similarly this strong preparation of radium produces fluorescence in a diamond or in willemite, a silicate of zinc ore, while the weaker preparations at the best produce but the faintest fluorescence in these substances.

As to the properties of radium that have brought it into prominence, we find that the most striking is that of emitting rays or emanations which have the same general characteristics as the rays generated in the Crookes tubes and as the Roentgen rays. The rays coming from radium are of three classes: the *alpha* rays, *canalstrahlen*, very easily absorbed, very slightly penetrating and with a slight magnetic deviability, as they carry a positive electric charge; the *beta* rays, identical with the cathode rays, having greater penetration than the alpha rays, deviable in the magnetic field, and carrying a distinct negative electric charge; the *gamma* rays, possessing marked penetration, and not at all deviable by the magnet, analogous to the Roentgen rays. All three classes produce chemical action in a photographic plate, and the two latter groups induce a secondary activity in the bodies upon which they impinge, so that these bodies become in turn radio-active.

Turning now to the *application of radium to medicine* we follow the successive steps of development. In reference to *skiagraphy*, we find that the rays from radium will produce shadow pictures on photographic plates exposed to them; the radium rays penetrate through the black paper envelopes used with the Carbutt plates, giving pictures of the denser substances like the X-ray pictures, but the results are not as satisfactory, for we find no sharp definition. The radium rays are diffused by their passage even through the less dense bodies and give a blurred outline. This effect is distinctly heightened by the influence of the secondary radiations arising from all parts of the object whose shadow is to be cast; for this body becomes radio-active in its turn as soon as the rays from the radium strike it, and is in itself capable of affecting the plate. Hence in the radium skiagraph we fail to get a definition of the bones in the soft tissues of the hand, for instance, as is demonstrated in the pictures taken by Walter, though there the foreign bodies did show up faintly. The radium skiagraphs taken by Dr. Robert Abbe similarly fail to show the bones in a mouse and in a snipe, though metallic substances placed between the body of the animal and the plate show up distinctly. On the

other hand, a shot in the snipe that failed to show in the radium picture was brought out clearly in the X-ray picture, and not merely the shot, but also the path of the shot, as marked by the lead left in its course. My own attempts to obtain pictures through the flesh have met with similar results. The forearm of a cadaver, with several pins stuck in it, was laid across a plate and exposed to radium with an activity of 240 for intervals varying from eight to one hundred and seventy-five hours. There was in no case more than a faint indication of the bones, and the only part of the pins that showed was an occasional pinhead that lay in contact with the photographic plate. The fluoroscopic screen pictures are equally unsatisfactory. However, Grunmach has found that by combining these Becquerel rays with the X-rays, by placing a screen, impregnated with a uranium solution between the X-ray bulb and the patient, he got a fluoroscopic picture on the screen which was much brighter and clearer than ever before.

As to the *physiologic effect* of the Becquerel rays, some very interesting work has been done on both plants and animals. Giesel fastened a tube of radium salt on the leaf of a growing plant and left it there for several hours. The spot soon after became marked by the loss of its chlorophyll, and by a yellow coloring. This discoloration persisted for several months, and then the leaf gradually regained its normal appearance. In Paris, under Becquerel's direction, Matout exposed some seeds of the common garden cress and some of white mustard in a single layer for twenty-four hours to the radium rays. The seeds were not sensibly affected, but sprouted and grew like normal seeds. However, after a week's exposure to the radium the seeds failed to sprout. Dr. Robert Abbe, of New York, exposed some canary seeds for forty hours to the rays of radium having a strength of 300,000, and found that they sprouted and grew slightly better than the controls exposed to the same conditions of sunlight and moisture without the radium, showing a slight stimulation from the effects of the radium from an exposure intermediate in length between those in the experiments of Matout.

The effect of radium on the growth of *bacteria* has been studied enough to say that on certain species, at least, the radium retards,



diminishes or inhibits the growth. Aschkinass and Caspari report that the *micrococcus prodigiosus* is inhibited in its growth after two hours' exposure to the effects of radium directly over the culture plate, and Henry Crookes adds to this the inhibition of *bacillus liquefaciens*, *bacillus coli communis* and others. Danysz is said to have found the same true for *bacillus anthracis*, and Pfeiffer and Friedberger for cholera and typhoid bacillus.

The action of radium *on animals* shows some extremely interesting facts. The first effects were noted on the persons who were working with the radium, in the shape of burns of the skin in areas that had been exposed. The burns obtained by Becquerel, Walkoff and Giesel are now generally known, also the fact that these burns resembled those from the X-rays in appearing several weeks after the exposure, as a slight reddening of the skin, which, if the exposure has been of sufficient duration, goes on to the formation of a blister or even of an ulcer. The scar likewise is a smooth one and absolutely hairless, even though the exposure may have caused less destruction of tissue than in an ulcer. The slow healing of the ulcer is also suggestive of the X-ray burns. M. Curie states also that the fingers of the persons working constantly with the strong preparations of radium in the laboratory show a tendency to desquamation, and sometimes become hard and painful.

M. Danysz has made a number of experiments with radium on the different tissues of animals. He placed some radium on the skin of a rabbit and produced a congestion after a few minutes' exposure; an exposure of twenty-four hours produced complete destruction of the skin, epidermis and dermis; longer exposures did not produce any deeper wound, the deep tissues and the muscles being scarcely affected. If radium be introduced under the skin in a sterile glass tube, and left there, it produces less effect on the skin and no further effect on the deep tissues. In this connection also we note an experiment by Dr. Robert Abbe: a tube of radium, which caused a blister of his skin after one hour's exposure, was introduced under the skin of a rabbit and left there several weeks, but produced no apparent effect. But there must be considered the fact demonstrated by M. Danysz that the guinea-pig is much more sensitive than the rabbit, for the exposure which caused fall of hair and ulceration in the guinea-pig caused only an increased growth of hair on the rabbit.

showing the marked difference in susceptibility of different animals.

Again M. Danysz introduced a capsule of radium into the peritoneal cavity of a guinea-pig and left it there in repeated experiments for periods varying from one to four months. The lesion produced was practically nothing, and yet on the skin the same bit of radium produced ulceration in twenty-four hours. Hence the serous membranes and intestines may be considered as at most only very slightly sensitive to the action of the radium.

On the other hand, the central nervous system seems to be far more sensitive than the skin. M. Danysz introduced a delicate tube of radium under the skin of a mouse one month old, placing it exactly over the vertebral column. At the end of three hours there developed paresis and ataxia, at the end of seven hours tetanic convulsions, which, if the tube was left in place, became more and more intense, and killed the mouse inside of twelve to eighteen hours. Control mice of the same age bore slightly larger empty tubes for longer periods without inconvenience. Mice three to four months old, treated in the same way, died with the same symptoms in three to four days; mice one year old died only after six to ten days. Three guinea-pigs, eight to twelve days old, carried the same tube of radium twenty-four to forty-eight hours under the skin over the lumbar portion of the cord. At the end of one to three days they had dragging of the legs followed by complete paralysis with rigidity of the feet as in tetanus, and died six to eight days later in convulsions like the mice. Adult guinea-pigs and rabbits similarly treated showed no immediate nervous effects. An adult rabbit after trephining had the tube inserted under the dura for eight hours. For two days nothing appeared, then there ensued a left hemiplegia.

M. Bohn has also made some extremely interesting experiments on animals during their period of growth, showing a diminution in the rate of growth in toad embryos exposed to radium. He also obtained what he considered monstrosities from exposing frog larvae and embryos to the action of radium, though none lived more than ten days after they passed the point where they should have modified their development and failed to do so. M. Bohn interpreted his experiments as showing that the Becquerel rays act only on the growth of the tissues and organisms. Moreover, if the rays of radium have traversed the body of the animal

for a few hours, the tissues acquire the new property ; this may remain latent, but suddenly appear when the activity of the tissues is naturally augmented.

Another later series of experiments by M. Bohn on the eggs of the sea urchins seemed to corroborate these views. The sea urchin goes through three stages of development ; first, a ciliated blastula ; second, a gastrula, and third, a larva pluteus. An embryo in the blastula stage exposed to the radium for twenty to forty minutes, one hour, or two hours, failed to develop into a gastrula, and the action of the cilia was at its maximum after an exposure of forty minutes. If gastrulation has commenced, it stops or goes on irregularly, the digestive tube being represented by an irregular mass of cells, possibly only a premature mouth. After gastrulation the gastrula exposed for a moment to the radium often took on the truncated quadrangular pyramidal form characteristic of the pluteus, but did not acquire the arm-like expansion, that helps in swimming ; and the pluteus stage remained small and atrophic.

A series of experiments on the reproductive elements was also carried on. The radium was found to cause a rapid enfeeblement of the activity of the spermatozoa or their death. On the other hand, the ovules exposed were more apt to be fecundated, and even the unfecundated developed to a demi-morula stage of four or eight cells. Bohn's interpretation of his experiments is that the radium acts on the chromatin of the nucleus in proportion to the duration of the exposure. The bare chromatin of the spermatozoa is killed, but the chromatin of the ovule which is protected by the protoplasm is excited to great activity. The rays give to the chromatin of the fecundated egg durable properties which have their effect upon the organism at the moment of its growth and renovation. The rays do not seem to have a specific effect on the various tissues. They act on the special tissues because these are in the process of evolution and differentiation. Thus he would explain the effect of the rays upon the skin in man as due to the fact that it, too, is constantly being renewed while the serous membranes and muscles are not. The effect on the nervous tissues he leaves to be explained in the near future.

M. Danysz is said also to have exposed some larvae of meal-worms for a few hours to radium and found that the larvae did not develop into moths, but continued to live as larvae. In one

instance one larva lived unchanged through three moth generations of the controls, some four months after the exposure.

Mr. Hammer made a single very interesting experiment with radium on an electric torpedo. He tested the fish first several times, getting shocks sufficiently strong to twist his arm pretty badly; then he laid six tubes of radium upon the back of the fish for twenty minutes. At the end of that time he removed the radium and tried again to obtain a shock from the fish. For fifteen minutes he persisted in his attempts to rouse the fish to the shocking point, but could not get the least response. Mr. Hammer admits that the fish may have been "entirely out of shocks," but it is well known that these fish will continue to give shocks for a very long period, one authority, according to Hammer, reporting 360 shocks in seven minutes.

Turning from these extremely interesting physiological experiments to the application of radium to *therapeutics*, we note that the item which has received the most newspaper attention is the restoration of sight to the blind. Now, so far as scientific work goes, there seems to be no reason to expect any great wonder from radium in this line. If the optic nerve or any of the nerve centers is destroyed, we can see no reason for the restoration of sight, and if the nerve is not destroyed the oculist can do as much for the patient without radium as with it. The only condition where its effect may be of service is where the refractive media are opaque to ordinary light, and yet the nerves are in good condition. In such a case the radium, by producing rays which penetrate the opaque media, may tell us that the nerve is intact, and an operation on the refractive media, perhaps a cataract operation, may be worth attempting.

The practical therapeutic value of radium seems to be following the lines of Finsen and Roentgen ray therapy. The first therapeutic results published were by M. Danlos in Paris, on the *treatment of lupus*. Of various cases treated, he has been able to follow five, which he reports as follows:

Case I. Lupus of nose; one exposure of 36 hours to 19,000 radium.

Case II. Lupus of face, ears, neck and hands of ten years' duration. Three different areas exposed to 5,200 radium for 24, 48 and 54 hours respectively; each of these three regions was cured while the unexposed areas remained as they were.



Case III. Lupus of the hands of 20 years' duration. One portion treated with Finsen light, 110 sittings; improving slowly. Another portion treated with 5,200 radium, five applications of 24, 39, 39, 40 and 63 hours' duration shows marked improvement, in decided contrast to that treated by the Finsen light and in favor of the radium.

Case IV. Lupus nodules near the eye, treated with 2,500 radium; cured.

Case V. *Extensive lupus* of the hands treated with 19,000 radium, at five different areas for single exposures of 24, 36, 72, 96 and 120 hours respectively. The areas in the first four places were cured. The man then ran away from the hospital and turned up six months later at another place, to be treated by MM. Hallopeau and Gadaud, for an ulcer on the back of his hand, caused by the radium. M. Danlos saw the case again, and recognized the ulcer as being at the location of the radium application and of the shape of the radium vial. He advised a shorter exposure in future cases, but as this burn was inflicted in the first series of cases in which radium had ever been used therapeutically, and as there was no standard of dosage, certainly no harsh judgment should be passed on M. Danlos for the production of this ulcer.

Mackintyre has reported two cases of lupus treated by radium.

Case VI. Lupus of the nose and hand; the area on the hand was a half inch in diameter; treated by radium (strength not given, probably a German preparation), exposed daily 20 to 30 minutes for three weeks and completely healed.

Case VII. Lupus of the nostril and nose, one inch in diameter; treated similarly daily for four weeks and cured. This case had been under treatment in the previous year by the Finsen light, and had disappeared only to recur in two months.

Holzknicht adds another case of lupus.

Case VIII. *Lupus tumidus* that became flatter under both Finsen light and radium. For some reason the treatment was continued under the Finsen light.

Dr. Robert Abbe adds still another case of lupus of the face.

Case IX. Treated by a single exposure of an hour and a half to 300,000 radium, with complete disappearance of the lesion when the patient was next seen one month later.

In addition to these lupus cases, several other skin diseases have been reported as treated by radium.

Danlos treated a case of *pernio*, but the date of his report was too early to state the result.

Holzknecht reported a case of *psoriasis* treated by both X-rays and radium with resorption of the areas in a short time.

Holzknecht also reported a case of *telangiectasis*, where eight areas were subjected to the action of the radium for intervals of ten minutes each. The exposures were followed in a short time by the appearance of eight white areas corresponding to the applications of the radium. The explanation given by the Neisser school of this result is that the radium causes degeneration and obliteration of the capillary intima.

Cases of *rodent ulcer* treated by radium have been reported by Mackintyre and Goldberg. Mackintyre's case was under treatment for two weeks, twenty to thirty minutes daily, and seemed to be improving; all discharge from the ulcer had ceased. Goldberg reported two cases; one, a rodent ulcer of the nose, to which the radium was applied at the first sitting for one and a half hours, followed by half-hour exposures at intervals of a week, giving a total exposure of seven hours. The case healed completely, giving a very good cosmetic effect. His second case was a rodent ulcer of the zygoma; first exposure, two hours; second, twenty days later, for one hour; in the course of nine weeks there had been a total exposure of four hours. Here likewise the result was complete cure with a good cosmetic effect.

Two cases of *sarcoma* have also been reported. Dr. Cleaves reports a case of sarcoma of the cheek, treated by both the X-rays and radium, the radium exposure being for five to ten minutes on two successive days to 300,000 radium, with prompt decrease of the pain and of the discharge. The other case was one of general melano-sarcoma of the skin, from Exner in Gussenbauer's clinic at Vienna. It was treated with the strongest German preparation for five to fifteen minutes daily, each of the skin nodules receiving a special exposure. On the fourteenth day of treatment the small areas were no longer visible, and the larger areas were distinctly smaller.

*Cancer* has received a still greater amount of attention than any of the other diseases.

Exner has reported from Gussenbauer's clinic a group of twenty cases improving under the influence of radium treatment, and he

speaks of one case, deserving special mention, of recurrent cancer of the mouth and lips, with invasion of the palate, which has shown marked decrease in size.

Holzknrecht, at the same meeting of the Vienna Medical Society, reported a case of epithelioma of the cheek the size of a silver dollar, to which he had made three applications of radium for five minutes each, and under that treatment the mass disappeared.

Davidson, at the Charing Cross Hospital, London, reports a case of epithelioma of the nose that is improving under treatment with radium (according to Dr. Cleaves).

Cleaves, of New York, reports a case of carcinoma of the cervix, under combined X-ray and radium treatment, which is steadily improving.

Dr. Morton, of New York, reports three cases of cancer of the cervix, or post-operative recurrences, under radium treatment, with better results than he was able to get with X-rays. The specimens of radium that he is using have the strengths of 3,000 and 7,000, respectively.

I am informed by Dr. Metzertott, of this city, that Dr. Wagner, of Chicago, has treated a cancer of the rectum successfully with radium. He himself also has begun the treatment of several cases.

Dr. Robert Abbe, of New York, has treated three cases of cancer with 300,000 radium—one a case of epithelioma of the ear, in which the treatment was begun, to compare the effects of the X-rays and radium. This was accomplished by covering one-half the growth with lead and treating the other half with the X-rays, and then reversing the lead cover and treating the other half with radium. During the first week of this comparative treatment the portion treated with the radium had the distinct advantage over that treated with the X-rays; then, for some reason, the resorption under the X-ray treatment took the lead for a couple of days. At that point, to hasten results if possible, the entire area was put under X-ray treatment, and so continued till it was completely healed, with a surprisingly good cosmetic effect.

A second case, of uterine cancer, was given a single exposure of twenty-four hours to 300,000 radium with distinct improvement.

The third case was one of recurrent cancerous nodules in the

skin after amputation of the breast. These nodules have disappeared completely under the effects of the radium.

My own experience is limited to a single case of inoperable carcinoma of the cervix and vagina, that I have been treating in association with Dr. G. Brown Miller. We had at our disposal a specimen of German radium, with an activity of possibly 1,500, loaned from the Smithsonian collection through the courtesy of Secretary Langley. The activity of this specimen was determined roughly by comparative photographic work done with this and some French specimens of known activity. We have been making exposures proportionately longer than those reported where the activity of the radium was higher, extending them to four or six hours daily. After an exposure of about twenty hours the patient found her pains becoming less. We continued until a total exposure of 56 hours was reached, and then, after a week's intermission and the absence of any irritative symptoms, we continued the exposures to a total of 100 hours, when slight burning pains became evident, and we at present are waiting and watching. We can say that the radium thus far has certainly had some good effect, for the patient has been relieved in a great measure of her pain for which she previously had to take morphine several times a day. Moreover, what discharge she had seems to have ceased, and the surface of the mass is apparently smoother than before the radium treatment was begun. The patient has a better appetite and in general feels better than she did before, but the final outcome is still dubious, or even gloomy. However, we feel that the radium has, at least, distinctly ameliorated the symptoms of the cancer and made life more bearable, and we are satisfied that in this, as in other branches of radium-therapy, there is much that is worthy of study.

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WALTER, B.; 1899-1900: Über die Becquerel-Strahlen eine den Roentgenstrahlen nahe verwandte Erscheinung. *Fortsch. a. d. Geb. d. Roentgenstrahlen*, Hamburg, III, p. 67.

**Dr. Daniel J. Kelly**, being asked to open the discussion, said that he was hardly prepared to speak upon the subject. There had been much wild talk as to the necessity for revising our ideas of the nature of energy, etc. It was possible that substances like radium merely stored up the waves which were passing through the ether all the time, and gave them out as the diamond gives out in the dark, rays which it has taken up in the light. The rays of light were only one set of a vast number of similar energies. Sound was one of them. When the vibrations were so fine that the ear could not perceive them, there was an interval of silence. We had electric waves, then heat waves; then light waves, red to violet, and then darkness. Yet, far beyond the extremest light waves, extended others the existence of which was made known to us by their chemical effects and the phenomena of fluorescence. Might we not suppose that, besides these, there were still others, of the nature of which we were as yet ignorant? What about these silent octaves? Why might we not believe that, as uranium transmuted the ultra-violet waves into luminous waves, the radium might similarly act on other vibrations, hitherto unrecognizable.

To make the point entirely clear, let us suppose that some one, wholly ignorant of the existence of X-rays, were introduced into a dark room and shown a mass of platino-cyanide of barium, glowing with a steady light, and that he satisfied himself by proper proof that its luster continued with undiminished energy. He might go away with the conviction that a substance had been discovered which was a source of perennial light and power. Yet a closer investigation might have revealed to him that the real source of the phenomena was the energy of an X-ray machine, surreptitiously concealed in an adjoining room, exercising its power through the walls, and that the apparent energy of the cyanide, was really only a phenomenon due to the absorp-

tion of its energy. Why might we not suppose that radium merely absorbed and revealed waves, the further properties of which were still beyond our knowledge, and that the phenomena it exhibited were entirely analogous to those already known to us by the labors of Herz, Becquerel and Roentgen?

**Dr. E. L. Morgan** emphasized the fact that other substances than radium took up and gave up light rays. Chlorophane, the diamond and baryta had this property. Even a freshly white-washed house appeared on a dark night to give out light. He believed the time not far distant when we would store the light and heat of the sun just as we now do coal.

**Dr. Abbe**, in closing the discussion, said that the radio-activity of other substances than radium was generally admitted. Radium excelled the others, however, in its radio-activity. Any substance could be rendered radio-active by mere proximity to radium; men handling it became so radio-active that they could not do delicate electrical experiments; they remained in this condition for hours or days.

**Dr. Chappell** asked Dr. Abbe whether he had understood him aright—that one of his specimens had lost power since he obtained it. If this was so, the statements in the press that radium lost none of its radio-activity with the passage of time, were false.

**Dr. Abbe** replied that one of his specimens had decreased in power and was not as luminous as at first.

**Dr. W. C. Borden** suggested that this loss might be due to the absorption of moisture through the cork of the tube. The salts of radium were absolutely unchangeable if properly kept. Only its impurity caused the loss.

**Dr. E. L. Morgan** asked why the absorption of moisture should cause a loss in the luminosity of radium if it was unchangeable. The mere absorption of a little water ought not to change it.

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## CASE OF OSTEOMYELITIS.\*

By J. FORD THOMPSON, M. D.,

Washington, D. C.

Matthew M., age 10 years, was admitted to Children's Hospital, Washington, Dec. 4, 1902.

His recollection is that he was healthy in early childhood. Had measles and mumps concurrently while in the Children's Hospital.

About a year before admission, he was thrown into the air by

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\* Reported and patient exhibited to the Medical Society of the District of Columbia, November 25, 1903.



a larger boy, and in falling sprained the right ankle. A short time afterward, he plunged the prong of a pitch-fork into the right leg just above the ankle. About November 4, 1902, a swelling was observed about two inches below the knee, and another two inches above the ankle, on the front of the right leg. Incision made by the local physician developed the presence of pus and a communication between the abscesses. The phalangeal joints became swollen, but the swelling subsided without treatment, as also did a swelling on the internal surface of the right thigh. About November 11 the right knee became swollen and painful, and during the week preceding admission to hospital the left knee became similarly affected. The patient lost in weight, had no appetite, was feverish and restless.

His temperature on admission was  $100.2^{\circ}$ . Dec. 5, the right kneejoint was found filled with pus, was incised on both sides of the patella and drained; the abscesses on the right leg were incised and found to be communicating; drained by tube and dressed with sterile gauze and plaster of Paris. He complained of great pain after operation, was delirious at times and failed to improve; 19th, two abscesses in the popliteal space were opened and a large quantity of pus evacuated. Still no improvement. All the wounds discharged profusely.

Jan. 9th, 1903, a large furuncle just above the nose was incised; 27th, the right tibia was removed, the periosteum saved; iodoform gauze packing; 31st, he was more comfortable, but had occasional pain.

Feb. 21, his general condition was improved; discharge slight.

April 13, wound dressed; slight discharge; temperature,  $105.6$ ; pulse 160 and irregular; pain in left limb; copious discharge from hip wound; 20th, left hipjoint excised; 29th, right leg looking well; left hip fairly so.

June 10, the right knee was again incised. Improvement continued. All other wounds had healed. The boy was in a chair and out doors. He fell about Sept. 15 and broke the weakened tibia of right leg. Sept. 22, Gritti's operation was done on right knee. In order that sufficient integument be retained the two old sinuses above the right knee were curetted and allowed to remain. These sinuses continued to discharge for about four weeks after operation when they healed perfectly.



**Dr. Thompson**, in presenting the patient, said that there had not been a case of acute infectious osteomyelitis presented before the Society for several years. In this time, however, there had been a number of cases at the Children's Hospital. This was a bad case. He treated another case in the ward at the same time, but it was less severe. Dr. Adams had asked why the limb was not amputated. It was because Dr. Thompson wished to save all of the limb possible. He exsected the whole of the tibia from the epiphyseal junctions, except the tube of periosteum which, he stuffed with iodoform gauze.

During all this time the patient had an epiphysitis of the left hip. Dr. Thompson incised, and found so much disease that he was compelled to resect the joint. The head and neck of the femur were taken out; the wound healed by first intention. The boy was a hero through all, and bore his lot cheerfully. The last operation was hastened for fear of amyloid degeneration.

It was interesting that the tibia was entirely reproduced except above, where there was a sinus. He related the case of the other child who also had osteomyelitis. Here, also, reproduction of bone was obtained. In conclusion, Dr. Thompson discussed the methods of operating which were suitable in different cases.

**Dr. Shands** thought it remarkable that cases of osteomyelitis had not been presented before the Society, as they were not infrequently seen. He related a case somewhat like the one presented by Dr. Thompson, seen a year ago. The disease began in the right tibia, and later affected the left hip. The kneejoint was also involved. He did an extensive operation, leaving only the periosteum of the tibia. Reproduction of bone was perfect, and the leg was saved; the knee was stiff. He then operated on the hip, and found a surprising condition. His diagnosis had been pathological dislocation of the hip, and to this Dr. Gibney, who happened to be in the city, agreed. There was two inches shortening. Osteomyelitis was found; the head of the femur was detached and lying loose in the joint cavity. The boy was now well, and had a useful leg.

Cases like this were not uncommon, and it was not difficult to see how they occurred. There was first pus formation at some point in the body, and infection was carried to the medullary cavities of the bones, and there lighted up an inflammation. There was a chill, fever, swelling and abscess. The cases were not tubercular. [He exhibited a specimen to illustrate how the disease could remain confined to one small bone.] The child had the symptoms above mentioned; he saw it eight weeks after onset. Operation showed that the disease was confined to the astragalus, which was entirely broken down.

**Dr. W. P. Carr** said that one should not operate, except to split the periosteum, in the acute inflammatory stage, when the fever was high and the patient's condition precarious. The inflamma-

tion would promptly subside if the periosteum was incised and the limb placed at rest in a wet dressing. The whole limb should be included in the dressing, not only the affected bone. A rubber tissue dressing should be put on over the wet dressing to prevent evaporation. The limb should then be left alone for a week or more, except for keeping the dressing wet. He had seen a number of cases so treated, and all were relieved, the improvement beginning in a few hours, and in two or three days the acute inflammation subsided. If the limb was thus kept quiet for several weeks, separation of the dead bone would take place, and it was wonderful how little bone had to be removed. This constituted a great recent advance. The results were not so favorable when operation was done in the acute inflammatory stage. He preferred a half per cent. carbolic acid solution for the wet dressing. Stronger solutions might do harm.

In answer to a question by Dr. Borden, Dr. Carr stated that he did not know exactly how the carbolized dressing produced its beneficial effects. Ochsner, of Chicago, was a great champion of the method. The dressing must be voluminous, and the limb at rest. If the dressing dried out, the carbolic acid would burn the skin; hence the outside rubber covering to the dressing. He had used the method almost every day for ten years in various forms of infection, and had never seen a bad effect from its use. The urine sometimes became dark after 24 hours or more, showing that some of the acid was absorbed.

**Dr. Thompson** took exception to Dr. Carr's remarks with reference to delay in operating in acute osteomyelitis. There should be no temporizing with so malignant an affection as this. Every book and pamphlet advised immediate operation. Dr. Carr must have been treating a periostitis, because the cure of acute osteomyelitis by any such method was an impossibility. The great severity of the affection demanded operation with the least possible delay. [To emphasize this point Dr. Thompson gave a vivid description of the conditions found in most of these cases.]

He was opposed to the application of carbolized dressings over any considerable surface of the body on account of the danger of toxic effects. He had known a two per cent. solution, applied over a felon, to cause gangrene. It was a fact generally recognized that such application was attended with more or less danger. He had seen dozens of cases of osteomyelitis, tubercular, infectious, and otherwise, and in every one the treatment was immediate operation. The results of this treatment were remarkable.

**Dr. Carr** said that there could have been no mistake in diagnosis in some of the cases he had treated by wet carbolized dressings. Dr. Thompson should remember that Dr. Carr had advocated the method only in the acute inflammatory stage, and it was to this stage that he referred when he said that operation was inadvisable in acute osteomyelitis. In this, he was backed up by no

less an authority than Ochsner, who, in his Clinical Surgery, advocated this method of procedure.

**Dr. Keech** asked Dr. Thompson whether typhoid fever was a cause of osteomyelitis, and being answered in the affirmative, he related a case that occurred in his practice. Dr. Thompson had stated that osteomyelitis resulted only in cases of mixed infection. The patient was a boy, the oldest of three children who were down with typhoid in the same family. Late in the course of the disease there was swelling of the cervical and submaxillary glands and toothache. Dr. Keech pulled two teeth from the right lower jaw with his fingers, and afterward sent the patient to the Children's Hospital. Osteomyelitis had set in, and one and one-half inches of the lower jaw was lost. Dr. Thompson cured the case beautifully by operation.

**Dr. W. C. Borden** congratulated Dr. Thompson on the remarkable success which had attended his treatment in the case under discussion. Dr. Carr's suggestion as to treatment raised an important question. If his advice were followed, it would revolutionize our treatment of osteomyelitis, and also our ideas as to deep infections. As Dr. Thompson had correctly said, the consensus of opinion was in favor of immediate operation in these cases. Knowing how careful and conservative a surgeon Dr. Thompson was, Dr. Borden felt that Dr. Thompson would not have made the statements he did without good grounds for so doing. The method of treatment suggested by Dr. Carr was of so recent origin that it was well at the present time to go slow in adopting it. It did not impress Dr. Borden favorably, as it was contrary to our ideas concerning deep infection. The surgeon did not even know what changes were taking place in the deep tissues. In a very mild case it was possible that the treatment might be sufficient. But in the majority of cases such temporizing would be disastrous. He did not believe that the carbolic acid in itself accomplished anything.

**Dr. Vale** exhibited a skiagraph showing the results of an osteomyelitis of the fourth metacarpal bone of right hand. The bone was greatly atrophied and the corresponding metacarpo-phalangeal joint was stiff as the result of a bony ankylosis. The case was interesting in connection with the instance cited by Dr. Shands of an osteomyelitis involving one of the small bones of the foot; on account also of the very common mistaken diagnosis of rheumatism; and, finally, in connection with the discussion which had arisen as to treatment—the diagnosis having been erroneous, the treatment had been non-surgical, and yet in the case of this small bone nature had been able to bring about a cure, though a very tedious one. The disease seemed traceable to repeated blows of the palm of the hand on a rubber stamp in printing hundreds of envelopes; it was ushered in by repeated chills, high fever and great swelling of the hand. The pains in the other



joints—simply symptomatic of the severe infection—were regarded as confirmatory of the diagnosis of rheumatism. Preceding the attack, the general health of the patient had not been up to par—she had only a short time before recovered from an obstinate ulceration of the cornea.

## CASE OF "FLAIL" JOINT; RESULT OF INFORMAL OPERATION ON ELBOWJOINT FOR SHOT INJURY.\*

By W. C. BORDEN, M. D., Major and Surgeon, U. S. Army.

Dr. Borden exhibited the patient, a lieutenant in the army, who had been struck by a bullet. The left elbow was the seat of injury, and after the operation little was expected of the joint in the way of motion. The lieutenant, however, by practicing certain motions and exercises devised by himself, succeeded in securing for the joint a remarkable degree of motion (which fact he demonstrated to the Society).

In exhibiting the man, Dr. Borden said that we had little data from the recent war as to the results of this operation. They were not favorable, so far as excision was concerned, in the civil war; the mortality was as high as in amputation; 79 per cent. resulted in ankylosis. The old methods were largely the cause of this unfortunate result. In the Franco-Prussian war the results were more favorable; only 20 per cent. of amputations at the lower third of the arm resulted fatally, and only 15 per cent. in excision at the elbow. Now, we should probably get better results than these, both as regarded life and motion. Conservatism was preferable to amputation unless the injury was such as to make the latter course unavoidable. Every effort should be made to save the arm if possible. This course had given excellent results in both civil and military surgery.

**Dr. J. Ford Thompson** said that the patient had consulted him, and wanted to be presented to the students at the Medical School. The result, as far as operation was concerned, was disgraceful; as to degree of motion, it was very good. Dr. Thompson had many times operated on the elbow joint. The trouble was not the danger of a flail joint, but of ankylosis. He had never seen a flail joint like this.

\* Reported and patient exhibited to the Medical Society of the District of Columbia, November 25, 1903.



## SOME REMINISCENCES OF POST MORTEM WORK.\*

By D. S. LAMB, A. M., M. D.,

Washington, D. C.

A paper of this kind is of necessity personal; with propriety, of course, I may not mention names, except in a few cases. No doubt, however, some who are present will recognize some of the cases. I am pleased to realize, in view of a recent severe illness, that although these reminiscences are *post mortem*, they are not posthumous.

It would be tedious, and serve no good purpose, to tell the names of the physicians for whom I have done this work, but I would like to recall the names of some who have passed over to the great majority. To some of you their personalities were familiar; there was B. B. Adams, Ashford, Baxter of the army, H. W. Beatty, John R. Bigelow, D. W. Bliss, Boarman, Busey, Dexter, Draper, Johnson Eliot, Ford, Garnett, Hartigan, Holston, Huntington of the army, Janney, W. W. Johnston, Kenon, Laub of the army, Lovejoy, Mauss, Carroll Morgan, Murphy of Columbia Hospital, Norris of the army, G. S. Palmer, Patterson, Pope of the army, Prentiss, Radcliffe, J. R. Reily, W. H. Ross, Sothoron, Stanton, W. H. Taylor, J. Harry Thompson, Toner, Grafton Tyler, Van Arnum, Verdi, Winslow, Woodward of the army, and J. T. Young.

I may mention incidentally that after nearly three years' service in the Union Army in the war of 1861-5, I was made a Hospital Steward in the army and assigned to duty at the General Hospitals, Alexandria, Va. The date of my appointment was May 20, 1864, and by a coincidence I was that day 21 years old. These hospitals contained about 4,000 beds for patients and, including the necessary officers, formed quite a community. Dr. Edwin Bentley, then Surgeon of Volunteers, afterwards Assistant Surgeon and Surgeon in the regular army, was in charge. He was retired some years ago.

Each steward was assigned to some special duty, and I was made chief clerk. Dr. Bentley suggested to me to study medicine, and offered such advantages as I could derive from the facilities afforded by the hospital. As far I could do so and attend to my duties I followed his suggestion; had access to books and

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\* Read before the Medical Society of the District of Columbia, November 18, 1903.

the practical work of the hospital and dispensary. There was plenty of surgical work, and it was as good as that period afforded anywhere else. Of the nine secondary hipjoint amputations during the four years of the war, Dr. Bentley did two, one of which I saw ; the man recovered.

I also saw some post mortem work. This work was done mainly by a Dr. Thomas Bowen, from Barbadoes, British West Indies, and Dr. W. C. Miner, also an Englishman by birth, who was afterward an Assistant Surgeon in the army.

In October, 1865, I was transferred to the office of the Surgeon General, in this city, and in November was assigned to duty at the Army Medical Museum, reporting to Dr. J. J. Woodward, of the army, for duty. He was the Curator of the Museum on the medical side. I have been attached to the Museum, therefore, 38 years, and am the only one of those of that time still connected therewith. Most of them are dead. I was associated at first with Dr. S. S. Bond, who was transferred to other duty a few months afterward. He is dead. He was preceded by A. J. Schafhirt, afterward and for many years a well-known druggist of this city, who only recently died. The Museum was then situated on H street, between 13th and 14th, N. W., in the building lately occupied by the Medical Department, Columbian University. This building was torn down in 1902 to make room for the new building for the same college. The old building was originally the property of W. W. Corcoran.

I attended lectures at the Georgetown Medical School, and the clinics at the hospitals. Of the then Faculty, only Drs. Reyburn and Warwick Evans are living.

Dr. Bond and I often went to the Freedmen's Hospital to make post mortem examinations, and in this way acquired much material for the Museum. The hospital was then situated at Seventh and Boundary streets ; Boundary street is now Florida avenue. The hospital occupied the buildings previously used by an army hospital—the "Campbell" Hospital. The patients were, as the name indicates, freedmen—men, women and children. They were, however, at that time, generally spoken of as *contrabands*. I was particularly struck with the very respectable Anglo-Saxon names which they bore. The most common names were Green, Jackson, Johnson, Smith and White. The Washington family was represented, and one man, Lewis Washington, was recorded

as 105 years old ; perhaps he was one of the old family servants at Mount Vernon.

After we had made about 100 examinations we went less regularly to the hospital, and, as stated, Dr. Bond was transferred to other duty, and I remained alone. After July, 1867, much post mortem work was done at the hospital by Dr. Edwin Bentley, of the army, who had been transferred for duty from Alexandria to this city. He also did similar work at the Washington Asylum. I did not resume the work in a regular way at Freedmen's until 1878. I have also, from time to time, done similar work at nearly all the other hospitals in this city. I have made examinations also at undertakers' establishments, and occasionally at the cemeteries ; at times also have gone into Maryland, Virginia, Pennsylvania and New Jersey for similar work. As Dr. Noble Young facetiously said to his class of medical students, "I have also been in the almshouse and jail."

The time was that, at least in the hospitals, if we wanted a post mortem examination we simply made it without asking leave of anybody. That time has passed. The consent of relatives or friends must now be first obtained, and this consent is often refused, and often, too, in very interesting cases. It is especially difficult now to obtain permission to examine the brain, and I know that the cause of death in some cases has not been precisely determined because of this refusal. Various objections are made, the commoner one being a fear of mutilation ; and I regret to say that just cause has been given for this fear, by the thoughtless, careless way in which the work has sometimes been done. It is certainly due to the living, to whom the dead are so closely bound by ties of relationship and affection, that they should not have their grief and distress increased by the offensiveness of a body, made so by careless post mortem work.

I might mention a few instances of refusal and interference. Several years ago, during the life of Dr. L. W. Ritchie, of Georgetown, he asked me to examine the body of a man in Georgetown who had died of tetanus. The doctor had obtained permission for the examination. Just as I was ready to begin work I was asked to suspend operations until a little matter was settled. It then developed that the family was under the impression that the doctor would remit the fees for his attendance for the privilege of making the examination. The doctor, however, declined to do this, and

the family then concluded that the very idea of a post mortem examination on their husband and father was too revolting to be even considered.

I once went to Providence Hospital with Doctor Kennon, of the Museum, to examine a man in whom he was interested. We obtained permission for the examination from both the mother of the deceased and the sister in charge of the hospital. But I had scarcely begun the work when one of the male nurses came into the dead-house and strenuously objected. He was in a fighting humor about it and was a bigger man than either of us. We hesitated a little what to do. But finally Kennon began to handle the instruments in a threatening way and the English language in a manner not in keeping with the religious side of Providence Hospital, for Kennon had quite a vocabulary of emphatic expletives. The upshot was that the nurse left us and I finished the work.

Dr. B. B. Adams, deceased, once asked me to examine a case of supposed typhoid fever, in a house on Grant street near Seventh, northwest. It was Saturday night, which, in those days in this locality, was a night redolent of bad whiskey and bad manners. As the examination progressed, a threatening crowd collected outside and we were informed that it was reported that we were doing dreadful things. But Adams was equal to the emergency. Standing in the outer door-way, he made a speech to the crowd reminding them how often he had ministered to them and their wives and children, in season and out, and at much personal sacrifice, and he won them over, so that they left us to finish our work in peace.

It has happened to me a number of times that permission to make examinations has been obtained only by the friendly offices of the spiritual adviser of the family. I do not recall that any minister ever made any objection. This is in marked contrast to the action of some undertakers who have objected, and so far as I could understand, because they did not like the trouble they were put to ; although I presume, they charged for it.

Some years ago I made many examinations for the coroner, then Dr. D. C. Patterson. Patterson came to the Museum to arrange, if possible, for me to make all his post mortems. I never was paid for any that I made for him, for Dr. Woodward, of the Museum, took the ground that if there was to be any com-



pensation, it should go to some one not in the Government service.

Now and then I have examined women who died of hemorrhage or peritonitis under circumstances which suggested mal-practice. In such cases, I have made a frank statement of the findings and conclusions. I recall only one case, however, in which any legal inquiry followed, and in that case the testimony failed to sufficiently incriminate any particular person.

At one time there was a series of cases of erysipelas among the babies at Columbia Hospital for Women, and I found purulent peritonitis in each child examined.

The beginning of the Zoölogical Park in this city was in a group of animals in a building in the Smithsonian Park near our Museum. An occasional death in this group brought me an invitation to examine as to the cause of death, and in this way I obtained some valuable material for the Museum and added to my knowledge of comparative pathology. It would seem obvious that the diseases and injuries of the lower animals, especially mammals, should closely resemble those of the human subject. There are, however, in some cases quite appreciable naked-eye differences, as, for instance, in tubercular pleurisy. It was a surprise to me, however, when one day I was showing a well-known surgeon some parts of the Museum that he wanted to see before finishing a work on surgery which he afterward published, he asked me if the lower animals were afflicted with tumors like those of the human subject.

The cases that I have examined outside the hospitals include persons in public life, lawyers, doctors, pharmacists, ministers, army and navy officers and business men; both sexes and all ages, including the fetus, and also the lower animals. For some inscrutable reason I have never examined an undertaker.

In a few cases the names may be given, since much publicity attended the examinations. The first of note was that of Senator Brooks, of New York, a patient of Dr. Garnett; Brooks died of cancer of the stomach. Drs. Schaeffer, Acker and I made the examination.

Vice-President Henry Wilson had a complication of disorders. Dr. Baxter, afterward Surgeon General of the Army, attended him. The end, however, came so suddenly that several other physicians were called in, among them, I believe, Dr. G. L.

Magruder. Wilson's right name was Colbath, and he had changed his name because the right name seemed to be a kind of incubus to him. Very improperly and unfortunately, the examination was made in a committee room of the capitol, in the presence of a miscellaneous crowd, including a lot of newspaper men. The operation included the examination of the head and upper spinal cavity, and the newspaper men aired the matter very disagreeably in the newspapers.

The examination of President Garfield, September 20, 1881, was so fully published that little remains for me to say. It had been arranged that I should make it. I was not, therefore, surprised to receive a message in the early morning hours of that day to get ready to go to Elberon. Surgeon General Barnes, Drs. Reyburn and Woodward and myself, and some others whom I have now forgotten, were on the train that left Washington for the Francklyn cottage, Elberon. At Monmouth Junction we were given a special train of one passenger car and the engine, and the road was cleared for us; they said that we went at the rate of 60 miles an hour, and it felt that way to me. Drs. Bliss, Agnew of Philadelphia, Hamilton and A. H. Smith of New York, and Boynton, a homoeopathic physician, were also present at the examination; and from time to time Stanley Brown, the President's private secretary; Col. Rockwell, Judge Advocate General Swaim and Attorney General MacVeagh were either in the room or near at hand. The examination lasted nearly three hours, which was a sufficient guarantee of care and thoroughness.

An amusing side of the examination to me was the attempt of Frank Leslie's newspaper to illustrate it. As I was unknown to fame, they resorted to the expedient of presenting me with my back to the reader.

Guiteau was also a public character; the assassin of President Garfield. With more or less assistance from a number of others, I made the examination at the Washington jail a short time after the execution, June 30, 1882. The conditions under which I made it were far from satisfactory. There had been much medical and other partisanship. Some papers facetiously reported that the examination was made to ascertain the cause of death. There were some interesting things, especially concerning the brain, that the

examination disclosed. All of this, however, is an old story. I have preserved some newspaper clippings and letters in regard to the case, which are interesting reading. Guiteau's skeleton is in existence, but is not on exhibition at the Museum. His spleen is there; it weighed 18 ounces. The skin of his head and neck, I have been often told, were in a Museum in New York city or Brooklyn; I believe the statement is correct. I have the remains of the brain, many portions of which were distributed to alienists throughout the country.

For Dr. Bliss I examined an ex-governor of Mississippi, who died of aneurism of the innominate artery rupturing into the trachea.

Chief Justice Cartter, of the District Supreme Court, died of cancer of the stomach. Dr. N. S. Lincoln attended him. Drs. Henry A. Robbins and H. L. E. Johnson helped at the examination.

For Dr. W. W. Johnston, I examined a child of one of the justices of the District Court, a girl of seven years, who died of peritonitis following perforating appendicitis. Drs. Prentiss and Ford Thompson were in consultation.

A high official of the State Department died of a tumor of larynx, though the immediate cause of death was congestion of the lungs. Drs. W. W. Johnston and Franck Hyatt were in attendance, and Dr. Ford Thompson did a tracheotomy.

Of army and navy officers and their families, I may mention the following: The first case was the infant child of Colonel ——; this child was born with a blind oesophagus, which of course prevented any food reaching the stomach, and the child starved to death in eleven days. I made the examination for Dr. Laub, of the army.

A general of the Ordnance Department died of Bright's disease. I examined by request of Drs. Woodward and Norris, of the army.

For Dr. O'Reilly, now Surgeon General of the Army, an officer who died of hemorrhage from a gastric ulcer. Also for Dr. O'Reilly, another officer who died of hemorrhage from an epithelioma of the bladder; and still later, also for Dr. O'Reilly, a retired officer, who, at time of death, had long been in the Ethnological Bureau. He died of hemorrhage from the stomach.

For Dr. Carroll Morgan I examined a naval officer (son of an

army officer), who died of general tuberculosis. The larynx especially was affected.

For Dr. McArdle, another officer of the army, who died of hemorrhage from aneurism of the aorta.

For Dr. Bryan, the wife of an army officer, who died of meningitis, following catarrhal inflammation of the frontal sinus.

I have examined some physicians. The first case was Dr. George C. Schaeffer, the father of Dr. E. M. Schaeffer. The next was Dr. J. G. F. Holston, who had a complication of diseases; the examination was made at his own request. Dr. H. H. Barker attended him.

Dr. J. W. Van Arnum died of fracture of skull caused by falling from a street car. Drs. G. W. Cook and F. O. St. Clair attended him.

Dr. Wm. B. Corbit died of disease of pancreas, the exact character of which was not made out. Corbit was an assistant to Dr. Woodward. He married the widow of a Washington physician. Dr. Charles Hagner attended him.

Dr. Mary E. Hart, a homoeopathic physician, died in Chicago. An examination was made there which was not quite satisfactory to the friends in this city. She had long been ailing with neurasthenia. I found an ulcerated rectum, which communicated with one ovary; this lesion seemed to have escaped the notice of the first examiner.

I examined Dr. Wm. E. Childs, of the Surgeon General's Office; he died of tuberculosis. Attended by Dr. Janney.

Dr. J. O. Stanton died of pneumonia.

For Dr. C. W. Brown I examined Dr. Henry May, who also died of pneumonia.

Dr. Caroline B. Winslow died of paralysis, following cerebral hemorrhage. She was a well-known homoeopathic physician, who was also actively engaged in many philanthropic movements, especially whatever promised benefit to her sex.

Dr. John L. Wolf, dentist, died of meningitis following otorrhoea. Attended by Drs. R. W. Baker and Wilmer.

Dr. Sylvanus Jones, pharmacist, died of catarrhal jaundice.

For Dr. Franzoni I examined Dr. M. D. Peck, who died of cancer of lung.

Dr. H. W. Haskins died of pneumonia.



In two cases I have examined the wife of a physician ; in each case the woman died of hemorrhage from tubal gestation.

I examined Dr. A. F. Steigers, for many years a contract surgeon in the army, serving mainly in Indian wars in the territories ; at time of death he was connected with the army medical library.

For Drs. W. W. Johnston and D. C. Patterson I examined the son of a prominent minister of this city, a young man, age 19, who had Bright's disease, but died of intestinal perforation and peritonitis. Some interest attached to the case because he was at the same time being treated by an irregular practitioner who gave him a medicine containing powdered oyster shell. Much of this powder was found in the intestines and also in the peritoneal cavity.

Among the cases of injury that did not reach the coroner are the following : For Dr. Lincoln I examined a deaf mute who died at the Deaf-Mute Institute in this city ; he was 25 years old, and had been injured while wrestling with another student. He died of abscess of cerebellum ; the bone was not fractured.

For Dr. J. T. Sothoron, a girl six years old, who, while running to school with her slate pencil in her hand, fell, and the pencil was driven through the roof of the orbit into the brain, causing meningitis and abscess, from which she died.

For Dr. Wm. H. Ross, the body of a well-known business man who dived in very shallow water ; his neck was broken and dislocated.

For Dr. N. F. Graham, a man who was in a carriage when it was struck by a locomotive. He was injured about the head and died of the supervening meningitis.

For Dr. C. W. Brown, a man, age 68, who had a fall ; the examination showed fracture of ribs and cerebral hemorrhage. But he died of pneumonia. The question arose as to whether the apoplexy preceded or followed the fall.

For Dr. Brown also, another man who was said to have been injured by a fall ; I failed to find any evidence of injury, but there were acute pericarditis and multiple abscesses of kidney. The man was a "Divine Healer." Also for Dr. Brown, a man who was said to have been injured, but I found only a few slight abrasions. He died of broncho-pneumonia, and I believed that he had had the grippe.

Quite recently I attended an examination of a man said to have

been drowned. Drs. Hooe and I made the examination. There was no question that the man died while in the water, but our examination was made two days afterward, and we found no evidence of drowning; he had died of syncope.

Of coroners' cases that went to trial I may mention the following: One was the Kincaid-Taulbee case; Kincaid killed Taulbee. There was no question of the shooting, but the assailant was acquitted on the ground, as I remember it, that he had acted in self defense. There was fatal fracture of the skull. The late Jeremiah Wilson was principal counsel for the defense, and, as usual, worried the medical witnesses. Judge Bradley presided.

Another case was that of a man who was shot at Luray, Va. Dr. W. L. Hudson, formerly of this city, was coroner. The injured man had been brought to Washington, to Garfield Hospital, where Dr. Ford Thompson trephined the skull, but the man died. Hudson asked me to examine the body. In due time the trial came on. I answered the summons; so did Dr. Thompson; we were not compelled to attend, but we went. The assailant in this case was acquitted; the trouble was political. Holmes Conrad was one of the counsel for the defense. He tried the usual game of discrediting the medical testimony. What struck me most at Luray was the condition of the courthouse; I think that it was the dirtiest place I ever was in.

Some years ago I examined a boy 13 years old, who had died rather suddenly; had been ailing only a few days. The coroner was notified, but contented himself with saying that the boy had died from natural causes. The family was not satisfied, and the father asked me to examine the body. I found the half of an ordinary sewing needle sticking in the heart, the other half having been broken off and pulled out by the boy. He died of fatal hemorrhage into the pericardium.

Of cases of disease of the brain, I may mention a few: In one case attended by Dr. R. G. Mauss, Dr. Reyburn, consulting, the young man died of an enormous abscess of the cerebrum, which had followed an otorrhoea, the sequel of scarlet fever.

For Dr. Pope, of the army, I examined a relative, who had been paralyzed 33 years; the paralysis had occurred in her first and only pregnancy. She died at 55. I found marked atrophy of the brain and dilatation of ventricles, but failed to discover the cause of the original trouble.

I examined an officer of the French consulate who had melancholia, but found nothing to explain the disease. Dr. W. W. Johnston attended him.

For Dr. G. S. Palmer, a woman aged 66, who had lost all the hair from her head and body about one year before her death. This was followed by partial paralysis. I found a softening of the corpus striatum on one side, but nothing else to explain the general loss of hair.

For Dr. T. C. Smith, a girl of 15, who died of abscess of cerebellum, due to chronic otorrhoea following measles.

For Dr. W. W. Johnston, a wealthy, educated, talented woman, who, however, was quite erratic, though not in an immoral way. Other physicians also saw her—Drs. Garnett, Lincoln, Kempster. I found much degeneration of the brain, which possibly accounted for her peculiarities.

For Dr. Magruder Muncaster, a boy 9 years old, the child of wealthy parents; a case of congenital hydrocephalus. He was confined to his bed a long time; an extreme case. I was struck with the statement made to me that the boy had a remarkable memory; that, for instance, he could remember 150 lines of poetry read to him one day and repeat them verbatim the next.

For Dr. Mary Spackman, a girl of 19, who died of subdural hemorrhage, the cause of which was obscure; there was no evidence of injury.

I was called to Philadelphia to examine a case of melancholia, but here again I failed to find anything to explain the symptoms.

For Dr. Heiberger I examined a woman who had a gumma of the brain and dura mater. Drs. Belt and Dufour had also seen the case.

For Dr. Moran, a man, age 45, who had a sarcoma of the cerebellum. Dr. James Kerr had operated and removed as much of the tumor as he could reach. Also for Dr. Moran, a man, age 40, who had gumma of the brain, causing meningitis.

For Dr. S. S. Adams, a case of large tubercular tumor of cerebellum in a girl five years old, causing hydrocephalus.

For Dr. Perry, a case of general atrophy of brain. This case went to court in a contest over a will. It seems to be difficult, if not impossible, to invalidate a will by evidence of degeneration of brain. The will stood.

For Dr. Belt, a case of purulent otitis and sinusitis. Drs. Bal-

loch and Belt both had operated in this case. The man died of secondary abscess of lung.

By request of the widow, I, with several others, examined the brain of a man in another will case. We found quite a number of lesions, but I was unable to say more than that it was *probable* that the mind of the man was affected.

I have seen many interesting cases of diseases of the heart and blood vessels, especially aneurisms. One of the earliest was an aneurism of the aorta under the care of Dr. Fenwick; Drs. W. P. and W. W. Johnston and Daniel Hagner were in consultation. The man improved for awhile quite decidedly under the use of potassium iodide.

I examined a case of valvular disease of heart for Dr. Lovejoy. The man, a barber, was a patient of Dr. Lovejoy's, and was very despondent over his disease. He had been a soldier. One day he asked the doctor about the anatomy of the neck, and the doctor answered the questions. That night the man cut his throat. A somewhat similar affair is reported to have occurred to Sir Astley Cooper, the eminent English surgeon. Cooper was sitting in a barber's chair; the barber asked similar questions and Cooper answered them. The barber left Cooper in the chair half-shaved and went outside and cut his throat.

For Dr. John Walter I examined a well-known business man who died of purulent myocarditis and hemorrhages into the lungs.

For Dr. Mary Parsons, a child six weeks old that died of purulent pericarditis.

For Dr. Henry A. Robbins, a man with aneurism of aorta; the sac had been filled with wire, causing the formation of a large clot. Drs. Reyburn and Stavely also saw the case.

For Dr. Acker, a man, age 68, who died of rupture of aneurism of abdominal aorta.

For Dr. S. J. Waggaman, who long since ceased to practice, a baby five months old, that died of pneumonia. I found, also, in this case, a marked congenital constriction of the arch of the aorta just beyond the origin of the left subclavian artery.

Cases of cancer of stomach have been frequent. Among the earliest was a French cook I examined for Dr. Verdi. Dr. Verdi was a prominent homoeopathic practitioner here; he died a few months ago in Italy, the land of his birth.



For Dr. W. W. Johnston I examined a member of the French consulate, 76 years old ; cancer of stomach. He had gastric pain 40 years ; the emaciation and atrophy were extreme.

For Dr. Grafton Tyler I examined a well-known business man ; cancer of stomach ; Drs. John Hall and Lincoln in consultation.

I examined a man, age 55, who died of cancer of stomach ; and years afterwards I examined the widow, who died at 76 of malignant tumor of the rectum.

I examined two Venezuelans ; one case for Dr. Mary Parsons and the other for Dr. G. W. Cook. One was 79, the other 70, and were great friends. Both died of cancer of stomach within four months of each other.

For Dr. T. C. Smith, a man, age 70, who died of hemorrhage from cancer of stomach, and a similar case for Dr. Mary Parsons.

I have also seen fatal gastric hemorrhage in cases of ulceration ; sometimes the ulcers were so small that it was difficult to find them.

For Dr. L. Eliot, a case of persistent vomiting for five years in a woman aged 34 at death. She was fed by rectum during that time. There was no lesion found explaining the vomiting, and we concluded that the symptom was part of a hysterical condition.

I examined an infant of seven weeks that had had symptoms of strangulation following vomiting. I found a congenital valvular opening between the oesophagus and trachea, through which, apparently, milk had passed during the vomiting. What looked like finely clotted milk was found in the trachea, and the child died of double pneumonia, caused, I inferred, by the milk.

I made two examinations for Dr. Carroll Morgan within a few days of each other. The first was a boy 2½ years old ; died of stricture of the oesophagus due to drinking caustic alkali. The second was a man, age 58, who also had stricture of oesophagus, from pressure of cancerous tumors.

I have seen many cases of cirrhosis of liver, generally with an alcoholic history. Cancer of liver was common, but generally secondary to cancer elsewhere. Many cases of enlarged spleen, leukemic, &c., and some cases of cancer of pancreas. For Dr. Thomas Martin I examined a man who died of primary cancer of gall-bladder. For Drs. Preston Miller and Gerry Morgan, a woman with primary sarcoma of greater omentum.

For Dr. Holston I examined a woman who died of cancer of uterus and bladder. The main interest of this case was that the examination was made at the house on Tenth street in which President Lincoln died.

For Dr. W. W. Johnston, a woman who had a mass of uterine fibroids weighing 36 lbs., and for Dr. Mary Parsons, another who had a mass weighing 25 lbs.

For Dr. E. S. Kimball, a woman who had an enormous umbilical hernia, the largest I ever saw. Kimball left the practice of medicine, and has made quite a reputation in music.

A child 13 months old died of cholera infantum. Dr. Busey was the attending physician. The child had also lymphangiectasis affecting one lower limb and the adjacent part of the pelvis. The examination was made at the cemetery; Dr. Drinkard drove me out there. This case was the basis of Busey's famous brochure on the dilatation of lymph channels to the research work of which Dr. Kleinschmidt so materially contributed.

I have seen much tuberculosis. One of the most interesting cases was a young colored boy, who died of rupture of softened bronchial glands, the rupture accompanied by fatal hemorrhage into the oesophagus. Dr. W. W. Johnston also saw the case. This boy was very bright, and had expressed a wish that I should make the post mortem examination because it might possibly benefit some one else. This was one of the very few cases in which such a request was made.

I examined a woman, age 76, who had a swelling of the body exactly corresponding to the tributaries of the thoracic duct. The limitation interested me and Dr. Triplett, who was then alive and in Washington, and I made a thorough examination, but failed to find any obstruction to explain the peculiar symptom.

I went to Philadelphia to examine a woman who died of tuberculosis of lungs and sarcoma of cerebellum; she had had a cancer of the breast removed a few years before; all these lesions were microscopically determined.

A negro man died of pneumonia and erysipelas; he had also cancer of liver; the liver weighed  $29\frac{1}{2}$  lbs., from 7 to 10 times the normal weight, and I believe the third largest on record. The cancer was diagnosticated by Dr. Osler, at Johns Hopkins, but the man lived so long afterwards that Osler began to doubt his own diagnosis. The man was finally admitted to the Freedmen's hos-

pital, this city, and was seen, among others, by Dr. Ernest King. The man was so dark and the other symptoms so marked that the erysipelas was unnoticed, but I contracted it, and was under the ministrations of Drs. Reyburn, Ford Thompson, Walter Reed, of the army, and Bermann, to all of whom I am much indebted.

Another hospital case was a woman, age 49, who died of tuberculosis. She had had for 29 years a bilateral ankylosis of lower jaw, so that during all that time she had been unable to open her mouth. She fed herself, and fortunately happened to be a cook. The cause of the ankylosis was undetermined.

I was asked one day, at the instance of a well-known business man, in whose family she lived, to examine a woman who died of some gastric trouble. She had had rather persistent vomiting, and had become very melancholic; had gradually wasted away. She was a member of a church here, and her minister wanted to be present at the examination. I did not find any lesion, but I found a three-months fetus in the uterus. I managed to divert the attention of the minister, so that he did not see me take out the specimen and place it under cover. What I told him I have forgotten, and the minister is dead. Not long afterwards I had a call from the business man; he wanted to know if I had the specimen and would I give it to him. I asked no questions, but I kept the specimen until *he* died, and then gave it away.

My post mortem work has never interfered much with my appetite or digestion. I have never seen any ghosts. The work has rarely interfered with my health. Years ago I was somewhat careless and was ready to examine anything and everything. Knowing nothing then of staphylococcus and streptococcus *et id omne genus*, pus cavities, puerperal peritonitis and tuberculosis had no terrors for me. The use of gloves had not yet come in. I have been infected in a small way several times; a chill, fever for a day or two, a sore on my hand, enlarged glands in the axilla, and in a few days I was well again. Occasionally a chronic dermatitis of the hand or finger, such as I have now, and which I have usually neglected until it got well of itself. I have never felt the need of using stimulants as a preventive, and, so far as I can see, have never suffered as much as those who did use them. I think their use as a preventive is hypothetical.

Most of the work has been done to accommodate other physicians and secure material for the Museum; a labor of love. I

hesitate to say how small a sum would cover all that I have ever received as compensation ; the sum would appear so ridiculously small.

I have said that I have never seen ghosts. You may, however, be interested to know that at the time I was convalescing from erysipelas I had a curious dream. It was not like Jacob's, when he saw the angels ascending and descending the heavenly ladder, but something not altogether unlike. I rarely remember dreams, but this impressed me. I was in a cemetery; it looked much like Oak Hill. I was standing alone, and it was the dusk of evening. The leaves rustled gently in the evening breeze. As I looked over the landscape, I noticed a flight of steps at my right; it led down into and disappeared in the darkness below. And as I looked a human form came up out of the darkness and walked away to the right, vanishing in the distance. Another quickly followed, and another, and so the procession continued. Some were mere skeletons ; the rest were but scantily robed. They uttered not a sound, but they all looked at me as they passed, and some I seemed to recognize. It was impressed on me in my dream that these were those on whom I had done post mortem work.

**Dr. A. F. A. King** said that the subject manifestly was not one which involved discussion. Dr. Lamb's paper had been a most pleasant surprise to him. The profession of this city owed Dr. Lamb a lasting debt of gratitude for the work he had done, gratuitously, and at the same time always cheerfully and generously. He had also been very generous with regard to the specimens under his care, both for exhibition and use by the students. Dr. King hoped that it would be many years before any one would have the opportunity to prepare an obituary on Dr. Lamb, but when that time did come we should refer with great pleasure to this historical address.

**Dr. Lamb**, in closing, thanked the Society for the kindly spirit in which it had received his reminiscences.



THE DIAGNOSIS AND TREATMENT OF APPENDICITIS—WITH TABULATED REPORT OF 98 CASES OF APPENDECTOMY.\*

By W. P. CARR, M. D.,

Washington, D. C.

Probably no other organ in the body is subject to such variations in situation, shape and size, as the vermiform appendix. It is frequently found adherent to the liver, frequently in the pelvic cavity, bound to the rectum or bladder, and in very rare cases it may even be found in the left inguinal fossa. It may be freely movable and spring from a freely movable caecum, or may be bound down and buried under a sessile caecum. It may be anywhere from half an inch to 9 inches in length, and from  $\frac{1}{2}$  inch to  $1\frac{1}{2}$  inch in diameter.

Its variations in size are pretty well illustrated in the collection I present for your inspection.

But in spite of the great variability in the situation of the appendix, when it becomes inflamed the pain and tenderness after a time are referred to its point of origin from the caecum, which, in a vast majority of cases, is in the right iliac fossa.

It is important to remember that the pain at first may be general or most severe in the umbilical region; but within twelve hours, and often sooner, it becomes localized at the base of the appendix, with as much certainty as does the pain of cystitis localize in the neck of the bladder.

In most cases of acute appendicitis, the diagnosis presents no difficulty even in the early stages, and is made principally from the character and situation of the pain and tenderness, and by the exclusion of other causes for these symptoms. There are, normally, no other organs in the right iliac fossa, or near it, that are likely to give rise to such symptoms except the kidney, the ovary, the caecum and a portion of the small intestine.

Stone in the pelvis of the kidney or ureter, or a floating kidney with a twisted pedicle, may closely simulate appendicitis. But usually the pain is referred more to the back, thighs and scrotum, and examination of the urine will be likely to show pus, blood or albumen. The pain is greater in proportion to the disturbance of the pulse and temperature, and at first there is less tenderness on

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pressure and less rigidity of the abdomen than in a severe appendicitis. A radiograph might clear up a doubtful diagnosis, and a leucocyte count would probably give valuable information. Leucocytosis would be much more marked in appendicitis. Should operation be undertaken for appendicitis, and such a condition of the kidney be found to exist, it would probably be better to close the abdominal incision and make another in the usual place for kidney operation. In this way not much time would be lost and no great harm done.

Tubo-ovarian inflammations may be excluded by careful vaginal examination. But it must be remembered that they frequently coexist with appendicitis.

It may be impossible in some cases, especially those seen late, to distinguish appendicitis from inflammatory, ulcerative, or malignant diseases of the caecum or small bowel in the neighborhood of the appendix. But as the treatment would be practically the same, the diagnosis is not of great practical importance. These diseases are very rare, except in the aged, with whom appendicitis is very uncommon.

It is certain that when an inflammatory focus is located in the right iliac fossa, in the vast majority of cases the appendix will be found at fault.

The point of greatest tenderness may be a little higher or lower than usual, and has been thought to give an indication of the situation of the body or tip of the appendix. I am satisfied, however, that this is not true, but that, fortunately, it does indicate the position of its base, a matter of greater importance with reference to the location of an incision in operating. It is well to remember that in the rare cases of transposition of the viscera these symptoms may be found on the left side.

The sudden onset of the pain is an important diagnostic point, as well as its sharp colicky nature. Such a pain, and a small, very tender spot situated half way between the umbilicus and the middle of Poupart's ligament, or near that point, are often all that can be found in the beginning of an attack, and are all that is necessary to make a very strong probable diagnosis. A rise of temperature and increase of the pulse rate, even if slight, are strong confirmations, unless there is something else to account for them. Rigidity of the abdominal muscles is an important indication when present. It points to a serious inflammatory condi-

tion of some organ under the rigid muscle, usually to beginning pus formation. The absence of mental symptoms is sometimes of value. Nausea and vomiting, and a previous history of constipation may assist.

The presence of a tumor is by no means necessary to a diagnosis, and rough palpation or percussion of the abdomen in search of one, besides being extremely painful, may do much harm.

The diseases most likely to be confounded with appendicitis are, I think, typhoid fever, localized tubercular peritonitis, inflammations or tumors of the ovary, pediculated tumors of the uterus and malignant disease or ulceration of the caecum. Appendicitis may occur during an attack of typhoid fever or typhoid may develop during an attack of appendicitis. A number of such cases have been reported. In any case of doubt between these two diseases a Widal test and a leucocyte count should clear up the difficulty.

It may sometimes be impossible to distinguish between localized tubercular peritonitis and sub-acute or chronic appendicitis. But as the treatment is practically the same the diagnosis is not practically important. I have twice operated for chronic appendicitis and found tubercular peritonitis, and with the happiest result in both cases.

The same thing may be said of diseased ovaries and pediculated tumors of the uterus. A careful vaginal examination should usually make the diagnosis in such cases; but such conditions frequently co-exist with appendicitis, and I have several times removed diseased ovaries and pediculated fibroids of the uterus through a gridiron incision over the appendix.

It seems fortunate that the only diseases that we cannot, with certainty, distinguish from appendicitis are diseases that need operation, and one that can be done through the same incision. I once operated for appendicitis and found a rotten ovarian tumor with a twisted pedicle occupying the right iliac fossa. This was easily removed through the incision already made. At the time I saw this case I think no one could have told that this tumor was not a large appendiceal abscess. This diagnosis was made by Dr. Bushong and Dr. Willie McGuire, and confirmed by myself. One point I wish particularly to emphasize. The severity of the symptoms is very frequently no index to the severity of the lesion. I have found only a mild catarrhal appendix with a temperature

of 104, a pulse of 120, and severe pain, and I have found some of the worst gangrenous and perforated cases with slight symptoms. This has been the experience of all operators. One of Finney's worst cases walked into his office, complaining only of slight symptoms, and yet, at the time, his abdomen was filled with pockets of pus, and he died shortly afterward.

There seems to be little doubt that the safest and best treatment is radical operation, as early as possible in all cases except one class that I shall presently describe. I refer to acute perforative or gangrenous cases, with diffuse peritonitis, seen too late for safe operation. These are the cases that have furnished nearly all the deaths and inspired terror of the operation in the minds of the laity, and even of the profession. If all cases could be operated on in the very beginning of the attack, of course these bad cases would never occur, and the mortality would be very small. There would be many less deaths from appendicitis than we now have. But many patients absolutely refuse operation until they realize themselves to be dangerously ill, until the period of safe operation is past.

Various circumstances may render early operation impossible, and we are likely to be forced to use palliative measures in mild cases, and to find them best in some of the most severe. Nature's method of dealing with abdominal inflammations is to wall them off with coagulated lymph, the omentum, and surrounding viscera. The appendix is well situated for this purpose, usually having the end of the caecum above it and fixed walls on all sides except toward the median line. The omentum usually covers it, and, as has been pointed out by many operators, has a way of sliding around and enveloping an inflamed appendix or any other inflammatory spot within its reach. I have seen several inflamed appendices entirely wrapped up in omentum.

The weak side is toward the median line where the small intestine lies. Ochsner has clearly demonstrated the fact that peristaltic movements of the small intestine prevent adhesions and carry infection to distant parts of the abdominal cavity. Ochsner says (*Clinical Surgery*, p. 100, *et seq.*): "It is plain, then, that the infection of the general peritoneal cavity must occur from a disturbance on the part of the small intestines, and must be due to their peristaltic motion. \* \* \* It is a fact which has been demonstrated a great number of times that peristalsis does not



occur unless food or cathartics are introduced into the stomach. Theoretically, then, the disturbance which is to be feared to so great an extent is caused by the presence of food or cathartics in the stomach, and its logical remedy would be to prevent absolutely the introduction of any form of food or cathartics into the stomach, and the removal by gastric lavage of any portion of food that may be retained in the stomach at the beginning of the attack.

“That this is not only true theoretically, but in practice, I have demonstrated in a large number of cases, and many other surgeons, who have followed the same plan of treatment, have informed me that their experience has agreed with mine. There is one class of cases in which I have found this treatment of the greatest value. I refer to the class in which the appendix is gangrenous or perforated, and in which there is already a beginning general peritonitis. These patients give the impression of being profoundly ill. There is complete obstruction to the passage of gas or feces. There is nausea or vomiting and marked meteorism; the pulse is small and quick; usually there is a high fever, but the temperature may be subnormal; respiration is rapid, superficial and costal, and the abdominal muscles overlying the appendix are tense. The patient is in a state in which I formerly operated at once, day or night, as a last resort, only to find that it was too late in more than one-third the cases. In this class of cases there is still a recovery of over 90 per cent. if the principles laid down above be thoroughly applied. \* \* \*

“This refers particularly to a class of cases that Richardson has so well described as ‘Too late for an early and too early for a late operation.’ If the plan I have outlined above is carried out, the following changes are quite certain to occur: The nausea and vomiting will cease after one or two, or at most, three gastric irrigations. The meteorism and the pain will decrease greatly during the first 12 hours and will almost completely disappear in 24 hours. The pulse will become slower and firmer and more regular, the breathing deeper, and the patient’s general appearance will improve to an astonishing extent. The temperature will go below 100° F. the first 24 hours, and in three days it will be practically normal. The abdominal muscles will become soft as soon as the stomach contents have been removed by gastric lavage.”

This is certainly a rose-colored picture, but from my knowledge

of the carefulness and honesty of the writer, as well as from my own limited experience with his method, I believe it to be a true one. I am convinced that when immediate operation is impossible or inadvisable for any reason, such as failure to obtain the patient's consent, or unfavorable surroundings, the presence of advanced disease of the heart or kidneys, or when the patient's condition is such as to make operation almost hopeless, this method of treatment should be adopted, and that surprisingly good results will follow. The treatment, to be of any avail, must be carried out to the letter, and is as follows :

Turn the patient on the right side, that the weight of the intestines may support any adhesions that may have formed. Elevate the head and shoulders slightly with pillows. Spray the pharynx repeatedly with 4 per cent. solution of cocaine for about 5 minutes, allowing a small amount of the saliva to be swallowed. Pass a fairly large stomach tube, and siphon off the stomach contents. Pour in a pint of normal salt solution at 100° F. and siphon it off. Continue this lavage until the water returns clear. Place the patient in bed with the shoulders slightly elevated to favor gravitation toward the pelvis. Give absolutely no food nor medicines by the mouth. Every four hours give an enema of one ounce of concentrated predigested food dissolved in three ounces of normal salt solution. Repeat the lavage of the stomach once or twice if vomiting continues. It may seem unnecessary to do this when the patient has apparently emptied the stomach by repeated vomiting, but it is in just such cases that it is most necessary. The stomach never completely empties itself in this way, and a small amount of decomposing food and mucus is all that is necessary to keep up a reverse peristalsis and emptying of intestinal contents into the stomach. Bile, pancreatic juice and intestinal mucus may continue to regurgitate and produce nausea after all food has been vomited. But in most cases, even where vomiting has been severe, a surprisingly large amount of decomposing food will be washed out.

No anodyne will be needed in most cases, for as soon as the movements of the intestine cease the pain ceases. Localized abscess may form, and should be watched for, opened and drained, if found. This may be done with local anaesthesia with Schleich's solution, or eucaïne. A few such cases will recover completely, but the majority will need a radical operation later. The patient

should be allowed to recover fully from the acute attack before the operation is performed, and it can then be done with safety. It must be remembered that even a teaspoonful of food in the stomach may cause peristaltic movement of the intestine and render the treatment useless.

This treatment is not well suited for young children nor very old persons. They had better be operated on at once if their condition offers a fair hope of recovery. But as most cases occur between the ages of ten and thirty, it will be applicable to the great majority.

Leaving out cases so mild that the diagnosis is doubtful, I should recommend operating at once upon all acute appendicitis when this can be done in the first 36 hours from the beginning of the attack, unless operation is positively contra-indicated by some complicating disease. Undoubtedly the operation is safer when done early, regardless of the conditions found. This is an important matter, that I fear is not usually appreciated. It is better to operate on all chronic cases and all recurrent cases as soon as possible. There is no advantage in waiting for a patient to get over a mild attack. The mild attack may become severe, or the patient, when over it, may—and frequently does—refuse operation. I have never had a death where the operation was done in the first 24 hours, and only one where it was done within 36 hours from the onset; and I have had no deaths in chronic cases, nor in mild acute attacks.

Appended to this paper, I give a tabulated statement of all my cases—98 in number. Of these, 54 were severe acute cases with 7 deaths, and 44 were chronic or catarrhal, or very early acute, cases, with no deaths. All the cases classed as severe acute were perforated gangrenous or intensely inflamed, with more or less diffuse peritonitis. The fatal cases were Nos. 10, 16, 18, 19, 82, 88 and 98. Between Nos. 19 and 82 were 63 consecutive cases without a death, and 33 of these were of a severe acute type. Five of the 7 deaths were in severe acute perforative or gangrenous cases, operated on more than 48 hours from the beginning of the attack. One was in a gangrenous case operated on within 36 hours, and one was a severe inflammation that was neither ruptured nor gangrenous. Leaving out desperate cases, this is the only death in the 98 operations.

I now believe I could have saved some of the fatal cases by the

treatment recommended by Ochsner, and I shall try it in future in cases so ill as to make operation extremely hazardous, and where operation is positively refused.

Three of my fatal cases I believe nothing would have saved.

No. 18 was a young man, who, while in bed under treatment for gonorrhoeal orchitis by Dr. Ruffin, developed a large appendiceal abscess without any symptom to call attention to it. One night he complained for the first time of some pain in the right inguinal region. Next morning Dr. Ruffin examined him with one hand on the abdomen and a finger in the rectum. He tells me that he distinctly felt a large abscess between his finger and hand, and felt it rupture under the slight pressure of his finger, heard the pus gurgle as it poured into the peritoneal cavity. I operated on this patient two hours later at the Emergency Hospital, and found an abscess containing at least half a gallon of pus that had broken into the peritoneal cavity. He was thoroughly washed out with hot salt solution, but infection had already occurred over the whole peritoneum, probably from the gonococcus.

No treatment in my opinion could have saved this patient. Undoubtedly, much depends upon the virulence of the germ that is spread in the peritoneal cavity. Ordinarily, the leakage of appendiceal pus does no great harm if promptly removed. But if this cavity becomes diffusely contaminated with virulent streptococci nothing can save the patient, and the gonococcus, when fresh and active, is nearly as bad.

Case No. 10 was a man referred to me by Dr. Wade Atkinson, who saw him in the fourth week of an acute attack. He was very weak but had no fever. A large appendiceal abscess was opened and drained, nothing more was done, and when the patient recovered from the anaesthetics, I considered him safe. Next morning, however, he suddenly collapsed and died. The post mortem showed absolutely no peritonitis, and I am at a loss to account for his death.

Case No. 88 was a girl about 12 years old. She had a gangrenous appendix and gangrenous infection of the uterus, broad ligaments, ovaries and several feet of intestine. At the operation discolored areas were observed on the bowel, but the condition of the pelvic organs was not discovered. The patient died 12 hours after operation, and this extensive gangrene with thrombosis of the mesen-



teric veins was discovered. Nothing, in my opinion, could have saved this patient, as undoubtedly the gangrenous and thrombotic infection had already taken place at the time of operation.

Case No. 19 shows how infection may spread from the coagulated lymph that forms the wall of an abscess. In this case the abscess was opened and cleansed and the appendix removed without disturbing the abscess wall. The patient, a young man, did well, and had a normal temperature and pulse for 11 days. Then the temperature began to rise and continued rising until the 14th day, when the wound was reopened and a mass of inflamed omentum, as large and thick as my fist, removed. There was no pus, but a severe spreading, non-purulent infection creeping out in all directions from the abscess wall, which had been left intact. All adhesions and thickened omentum were removed, and again the patient's temperature and pulse became normal and he did well for 10 days more. Then the pulse and temperature rose again, the wound became intensely oedematous, the tissues of the abdominal wall around the wound looking like clear jelly, and the patient rapidly went into collapse and died. The autopsy showed that a severe non-purulent infection had again spread from the remnants of the abscess wall. I believe this patient would have recovered if I had broken down all adhesions and removed the masses of coagulated lymph at the first operation, and since that time I have always done this when the condition of the patient warranted it. I have in a number of cases discovered in this way separate pockets of pus and foci of infection at some distance from the appendix, and I believe that at least a dozen of my cases have been saved by this measure.

Of the extremely bad cases, such as I would now treat by Ochsner's method, 6 died and 14 recovered. Some of those that recovered were of sufficient interest to deserve brief mention. No. 5. A young physician, was operated upon about 22 hours after the first symptom. A perforated appendix was found with no adhesions at all. The abdomen contained much dirty fluid and specks of fecal matter. The whole small intestine and a large part of the colon were the color of chocolate and covered with a white deposit of lymph looking like a diphtheritic membrane. The appendix was removed, the abdomen cleansed with large quantities of hot normal salt solution, most of the lymph was removed from the intestine, but some patches were too ad-

herent and left a raw, bleeding surface. The wound was closed with gauze drainage. I had no hope of the patient's recovery, but he got well as easily as if he had been a mild catarrhal case.

No. 8. A prisoner from the jail, was sent to the Emergency Hospital by Dr. Shute. A large appendiceal abscess containing at least three quarts of pus and a rotten kidney was disclosed on operating. The kidney was so soft that I pulled it out with my fingers, thinking it was a firm blood clot. No vessels were tied, the renal artery could not be distinguished, but hemorrhage, which was free, was controlled by tight packing of gauze. The patient made an easy recovery.

No. 38. A large gangrenous appendix, removed at Providence Hospital. Stump inverted and wound closed without drainage. About a week later the patient's temperature rose. The wound was opened and a perforation of the caecum as large as a silver half dollar discovered. This perforation was not at the stump of the appendix, but on the under surface of the caecum, where it was very difficult to close. The closure was made with a through-and-through catgut stitch and gauze packing used. The patient finally recovered, but had a small fecal fistula, which persisted for over a year.

No. 89. A middle-aged fat man, had the largest appendix I have ever seen. When fresh it was  $4\frac{1}{2}$  inches long and  $1\frac{1}{2}$  inch in diameter, easily admitting my forefinger into its cavity. It was gangrenous and perforated at its base and contained two large concretions. There were only a few scattering adhesions and the abdomen was filled with dirty fluid and fecal matter. This patient was referred to me by Dr. Wade Atkinson as soon as he saw him; but we could never get a clear statement as to how long he had been sick. The operation was probably 4 or 5 days after the attack began. The appendix was removed by ligating it with catgut, as the tissues were too soft and friable to hold sutures. The abdomen was thoroughly irrigated and a large piece of infected omentum removed. The patient was very ill for 24 hours, but then improved rapidly and made a good recovery.

No. 26. A delicate-looking boy of 10, who had lost an eye, broken a leg and just recovered from pneumonia, was operated on in Hamilton, Va., July 10, 1899, on the third day of the attack. The appendix, which was gangrenous, was removed by ligation without disturbing adhesions. This boy recovered and

had good health until March 12, 1903, when I was again called to operate on him for appendicitis. I found that I had left about half an inch of the appendix at the first operation. This short stump had a concretion in it and a gangrenous perforation close to the caecum. The patient was extremely ill, having a diffuse peritonitis, but made a good recovery after the second operation.

Case No. 48 I mistook for typhoid fever, and only operated when urged by Dr. Ruffin to do so. Blood examination finally made the diagnosis clear by showing marked leucocytosis and absence of Widal reaction.

Case No. 59 recovered, but three months later developed abscess of the liver, from which he died.

My experience with these cases has taught me that there are a number of very important details that should be observed in operating for appendicitis. First in regard to the incision. The McBurney incision, which consists in separating the fibers of the external oblique and then of the internal oblique without cutting any muscular fibers, is undoubtedly best when it can be used, as there is no danger of hernia following its use, and the patients may be allowed to get up in ten days. I formerly considered it applicable only to cases in which the appendix was not ruptured and free from adhesions. I find now that I can successfully use it in nearly all cases. By noting the point of greatest tenderness, and making the center of the skin incision come an inch above this point, and by separating the internal oblique fibers an inch above this point, it will be found that the base of the appendix can nearly always be reached and drawn out of the wound. It is generally easy to pull the caecum upward for an inch or so, but it cannot be drawn downward. This is my reason for placing the center of the incision above the base of the appendix.

In pus cases, after cleansing the abscess cavity, I now invariably break up all adhesions, and this makes it possible to manipulate the caecum and appendix almost as readily as in catarrhal cases.

When there is no infection outside the appendix, if its base can be reached, it is sometimes easier to separate it from its caecal attachment and then work out the tip, and this may sometimes be shelled out of its peritoneal covering with comparative ease, and the peritoneal lining left *in situ*. In two recent cases I have in this manner avoided having to enlarge the McBurney incision.

Of course this incision may be enlarged if necessary to any ex-

tent by cutting across the fibers of the internal oblique, but this always leaves a weak spot and should be avoided if possible.

The opening may be made quite large by separating the fibers of the external and internal oblique muscles to a greater distance and pulling strongly on the sides of the opening with the fingers. For keeping the wound open, the fingers of a good assistant, if properly used, are vastly superior to retractors. I have also found that by making the skin incision and split in the external oblique a little nearer Poupart's ligament than is usually done, the fibers of the internal oblique may be separated to a greater extent away from the median line, and additional room thus gained. This also places the incision more conveniently for the base of the appendix. I have been able to remove not only the appendix, but also both ovaries and tubes, and in two cases pediculated fibroids of the uterus through this incision. If, however, the patient's condition is critical, or if adhesions or complications are believed to exist that will require a larger incision, it is better to make it in the linea semilunaris just external to the border of the rectus muscle, and thereby avoid cutting across the fibers of the internal oblique.

When infection is believed to be present outside the appendix I am in the habit of using hydrogen peroxid by pouring it freely into the infected area, often using a pint of it for this purpose. When a localized abscess is present and the patient in fair condition I first evacuate the pus, with sponges or by irrigation, then fill the cavity with hydrogen peroxid, dry it again, and then break down all adhesions, removing any masses of coagulated lymph or thickened and probably infected omentum that may be present. In doing this I have frequently discovered unsuspected pockets of pus, sometimes far removed from the appendix. In one of my recent cases I found adhesions extending to the opposite side of the abdominal cavity, and a pocket of pus in the left inguinal region. I feel sure that many fatal terminations have been due to leaving such infectious foci in the abdomen, and that their removal, if done in this manner, adds nothing to the danger.

Drainage is used much less frequently than it formerly was. If the stump of the appendix can be neatly inverted, and the infected area cleansed with hydrogen peroxid, no drainage will be needed, even in gangrenous or perforated cases. In such cases I am in the habit of leaving the catgut ligatures and sutures on the stump,



long, and bringing them out of the wound. By this means I am able to bring the stump of the appendix close under the wound, and keep it there, so that if pus does form it will follow the strands of catgut to the surface, or may be easily reached with a grooved director. But in a good many cases infected foci cannot be readily removed, or the stump is too soft to hold stitches, or the inflammation is of such a violent type that we do not feel safe without drainage. In such cases I believe it is much better to make a small opening through the thick muscles of the flank, and drain through that, closing the original incision after placing the gauze or drainage tube. This incision may may be made by separating the fibers, as in the McBurney method.

There is nothing equal to iodoform gauze for isolating infected areas, and I believe the best manner of draining such cases is to pass in several narrow strips of gauze alongside a stiff rubber or glass drainage tube; the ends of the gauze are then carefully spread over the suspected areas and the abdominal wound closed. The glass or rubber tube is put in mainly to facilitate removal of the gauze. If it is first removed there will be more room for removing the gauze. The gauze strips should not be allowed to remain longer than 48 hours, as granulations grow into the meshes and fasten them very firmly if no suppuration occurs.

In operating on very ill patients, no time should be lost, and the operation should be governed by the patient's condition. Many ill patients will stand very well an operation lasting fifteen or twenty minutes, who would certainly die under one lasting one or two hours. I have seen patients die on the table after one or two hours of careful operating, that I am sure might have been saved by simply opening an abscess. It is not even necessary to wash or sponge such an abscess. Simply open through a very small incision and put in a tube, a matter of five minutes. Usually a complete operation can be done in from 15 to 30 minutes. As soon as the anaesthetic is stopped, the patient's stomach should be thoroughly washed out with normal salt solution until it returns perfectly clear. I have done this lately after all operations and have been surprised at the relief it gives from nausea. In abdominal cases, it should also prevent peristalsis and consequent pain.

Name and date.	Sex	Age	Color.	Symptoms and description.	Condition found.—Operation.	Result.	Remarks.
No. 1. Mrs. W. Jan. 24, 1894.	F.	35	W.	Repeated attacks for several years—more and more severe. Just recovered from very severe attack.	Old, strong adhesion of caecum to anterior abdominal wall. Catarrhal appendix.	R.	Dr. Rozier Middleton.
2. M. W. June 5, 1895.	F.	22	W.	Has had several slight attacks and two severe ones. Just recovered from last attack.	Appendix thickened and constricted about the middle. Ligated with silk and removed. Wound closed without drainage.	R.	Dr. Middleton. Dr. P. B. Carter.
3. Mrs. B. M. July 31, 1896.	F.	30	W.	Attack supposed to be "Typhoid" until third week, when fever subsided, pulse increased to 120, and swelling appeared in right inguinal region.	Abscess containing one pint of pus and some necrotic tissue supposed to be appendix. Opened, washed out and packed with iodoform gauze.	R.	Dr. Arthur Hamilton.
4. J. B. Aug. 20, 1896.	M.	14	C.	Severe pain; temperature 103, pulse 120 on first day of attack.	Operation, 24 hours after first symptom. Appendix acutely inflamed. Ligated with silk and removed; gauze drainage.	R.	Dr. Lincoln Johnson. Dr. Shute.
5. W. C. W. Oct. 20, 1897.	M.	24	W.	Sudden severe attack. Temperature 104, pulse 110, 12 hours from onset.	Operation, 22 hours from onset. Appendix, gangrenous and perforated. Abdomen contained much fecal matter. No adhesions. Whole small intestine and most of colon intensely inflamed, chocolate color, and covered with deposit of lymph. Appendix ligated and removed. Abdomen flushed and cleansed. Wound drained with gauze.	R.	Dr. Shute. Operation at Emergency Hospital. I had little hope for this patient, but he made an easy recovery.
6. J. W. Nov. 6, 1897.	M.	26	C.	Seen one week from onset. Severe pain, fever and tympanites.	Appendix perforated near tip. About 4 ounces of pus, walled off. Appendix ligated and removed. Drainage.	R.	Dr. Middleton. Dr. Ellyson.

7. Mrs. C. Jan. 12, 1898.	F.	25	W.	Recurrent attacks of appendiceal colic.	Catarrhal appendix removed. Also cystic ovary.	R.	Garfield Hospital.
8. O. H. Feb. 19, 1898.	M.	26	W.	Prisoner from the jail. History unknown. Had been sick probably 2 weeks.	Appendiceal abscess containing 2 quarts of pus and a necrosed kidney. Opened and drained, kidney removed. Hemorrhage controlled by packing.	R.	Operation at Emer- gency Hospital. Re- ferred by Dr. Shute.
9. J. B. Mar. 9, 1898.	M.	22	C.	Acute attack. Tem- perature 103, pulse 120.	Operation about 36 hours from onset. Per- foration of appendix. Circumscribed abscess containing one ounce pus. Appendix ligated with silk and removed. Gauze drainage.	R.	Emergency Hospi- tal. Operation fol- lowed by fecal fistula, which closed in 10 days.
10. Mr. F. Mar. 11, 1898.	M.	32	W.	First seen 4 or 5 weeks after onset of acute at- tack. Fever had sub- sided, but pulse re- mained 120, and swelling developed in ing. region.	Large abscess opened extraperitoneally and loosely packed with gauze. Autopsy showed no peritonitis. Death must have been due to weak condition and shock or general systemic infection.	D.	Patient stood the operation well and was believed to be safe. Sudden collapse 18 hours after opera- tion and death in 2 hours more. No rise in temperature, but pulse rapid and final- ly imperceptible. Emergency Hospi- tal.
11. I. S. June 6, 1898.	F.	16	C.	Acute attack 3 months ago. Pain and tender- ness persist, and getting gradually worse.	Appendix adherent to caecum and lumbar peritoneum. Much thickened. Removed. Wound closed.	R.	
12. E. W. June 25, 1898.	M.	46	C.	Has had numerous at- tacks of pain in right ing. region. Came in with severe attack of pain. Temperature 102, pulse 110.	Catarrhal appendix removed. Wound closed without drainage.	R.	Emergency Hospi- tal. Superficial sup- puration in wound. Not serious. Recov- ery otherwise perfect.

Name and date.	Sex	Age	Color	Symptoms and description.	Condition found.—Operation.	Result.	Remarks.
13. C. K. June 28, 1898.	M.	14	W.	Case similar in every respect to one above.	Catarhal appendix removed. Wound closed without drainage.	R.	Emergency Hospital.
14. Mrs. D. July 5, 1898.	F.	18	W.	This girl, while drunk, fell from a 5th-story window. No injury could be discovered at first; next day her abdomen became tender and distended, and her temperature rose to 102. Large strangulated inguinal hernia, containing caecum and appendix.	Exploratory laparotomy showed nothing but a pint or so of fluid blood in the abdomen, and an acutely inflamed appendix, which was removed. Wound closed.	R.	This patient made the most rapid recovery from a laparotomy I have ever seen. She left the hospital in 10 days, and no ill effects followed.
15. H. S. July 14, 1898.	M.	73	C.	Large strangulated inguinal hernia, containing caecum and appendix.	Bassini operation. Appendix much thickened, occluded near caecum and contained two fecal concretions. Removed.	R.	Emergency Hospital.
16. — W. Aug. —, 1898.	M.	10	W.	Acute attack. Operation at patient's house on 3d or 4th day.	Large appendiceal abscess opened and drained. Appendix not found.	D.	Dr. Wade Atkinson. Patient died in collapse 36 hours after operation.
17. J. H. Sept. 14, 1898.	M.	58	W.	Came to hospital for operation for large inguinal hernia, which had become very painful.	Bassini operation. Sack contained caecum and appendix, which was thick, red, distended with mucus and occluded at the base. Appendix removed.	R.	Emergency Hospital.
18. W. C. B. Nov. 10, 1898.	M.	18 or 20	W.	While under treatment, in bed, for gonorrheal orchitis, he developed a large appendiceal abscess containing $\frac{1}{2}$ gal. pus. This abscess ruptured while a rectal examination was being made by Dr. Ruffin.	The patient was operated on two hours after the rupture. Pus in all parts of abdomen. Thoroughly washed out. Appendix removed. Drained.	D.	Dr. Ruffin. Emergency Hospital. This patient had no symptoms of abscess until the night before the operation.



19, Nov. 10, 1898.	M. 22	W.	Came to hospital with acute attack 12 hours from onset. Put to bed. Ice bag applied. No improvement in pulse and temp., but pain less.	Operation 36 hours from beginning of attack. Appendix gangrenous; small circumscribed abscess. Drained with gauze; 14 days later wound reopened, large mass of thickened omentum removed. Autopsy on 29th day. Showed a severe oedematous, non-purulent infection of wound and peritoneum.	D.	Dr. Shute. University Hospital. This patient did well for 11 days after the first operation and for 10 days after the second. A slow infection seemed to spread from the infected area each time, in spite of drainage and irrigations.
20, Mr. C. Nov. 21, 1898.	M. 28	W.	Had the usual symptoms of a severe acute attack. Was under treatment for pulmonary tuberculosis at the time.	Perforated appendix. Circumscribed abscess, containing 2 oz. pus. Gauze drainage. Operation about 24 hours after onset.	R.	Dr. Ruffin. Emergency Hospital.
21, Mrs. S. Dec. 22, 1898.	F. 26	W.	Chronic appendicitis and cystic ovaries.	Appendix removed. Stump inverted. Ovaries and tubes removed. No drainage.	R.	University Hospital. Recovery perfect.
22, Mr. O. Jan. 14, 1899.	M. 22	W.	Came in with sub-acute attack. History of attacks every two or three months for last two years.	Thickened long appendix, adherent and bent at sharp angle. Removed. Stump inverted.	R.	Emergency Hospital.
23, G. R. Mar. 6, 1899.	M. 27	W.	Third attack. Mild case.	Catarrhal appendix removed. Stump inverted and wound closed without drainage.	R.	University Hospital. McBurney incision used. Patient discharged 10th day.
24, L. M. June 5, 1899.	M. 23	W.	Several mild attacks. This one severe. Came to hospital 24 hours after onset. Next morning, temp. 102, pulse 120.	Operation about 38 hours after onset. Perforated appendix. Pus apparently not walled off. Diffuse peritonitis beginning. Gauze drainage.	R.	Emergency Hospital. This patient was quite ill for 3 days. Then improved rapidly.
25, C. W. A. July 6, 1899.	M. 30	W.	Came to hospital with severe pain; temp. 103.5, pulse 130; severe nausea.	Operation 24 hours after onset. Catarrhal appendix removed. Stump inverted. No drainage.	R.	McBurney incision not used, as I expected a bad pus case.

Name and date.	Sex.	Age.	Color.	Symptoms and description.	Condition found.—Operation.	Result.	Remarks.
26. H. M. July 10, 1899.	M.	10	W.	Delicate boy. Severe acute symptoms.	Gangrenous appendix removed by ligation with catgut. Circumscribed abscess packed with gauze. See case No. 80.	R.	Dr. Keen, Hamilton, Va. Dr. F. R. Hagner. Recovery tedious, but apparently complete.
27. H. B. Oct. 7, 1899.	M.	22	W.	Severe acute attack. Came to hospital twelve hours after onset.	Appendix distended with pus. Beginning gangrene, but not ruptured. Stump inverted. Gauze drain.	R.	Emergency Hospital. Operation 22 hours after onset.
28. E. J. Oct. 14, 1899.	F.	25	C.	Acute symptoms. Operation fourth day of attack.	Perforation. Circumscribed abscess. Beginning diffuse peritonitis.	R.	Emergency Hospital.
29. C. M. Jan. 4, 1900.	M.	24	W.	No record of previous history.	Appendix gangrenous and perforated. Slight adhesions. Diffuse peritonitis well marked.	R.	Emergency Hospital.
30. J. M. Jan. 10, 1900.	M.	12	W.	Very acute attack. Operated at his home 14 hours after onset.	Gangrenous appendix, not perforated. No adhesions. Beginning diffuse peritonitis.	R.	Dr. Fisher and Dr. Hagner.
31. E. O. Jan. 30, 1900.	M.	50	W.	Second sharp acute attack.	Operation 12 hours from onset. McBurney incision. Catarrhal appendix. No drain.	R.	Emergency Hospital. Patient up on 9th day.
32. G. W. Feb. 4, 1900.	M.	45	W.	This patient was operated on just after recovering from his fifth attack, which was very severe, with temp. 104, pulse 130.	Appendix apparently normal. No adhesions. Stump inverted. No drainage. Appendix showed catarrhal condition inside.	R.	Dr. Boardman. Emergency Hospital. Patient has had no trouble since operation.

F. 33. M. G. Feb. 14, 1900.	14	W.	Severe acute attack. Seen on sixth day. Tem- perature 102, pulse 140. Respirations, 36. Had numerous slight attacks and one severe. Operated in interval.	Perforated appendix. Abscess containing $\frac{1}{2}$ pint of pus. Very soft adhesions. Well marked, diffuse peritonitis. Abdomen washed thor- oughly. Adhesions separated. Gauze drain. McBurney incision. Catarrhal appendix. Stump inverted. No drainage.	R.	Dr. Boardman. Dr. Fisher.
F. 34. Mrs. R. March 25, 1900.	23	W.	Recurrent appendi- citis. Operation in in- terval.	Catarrhal appendix. Stump inverted. No drainage.	R.	University Hospi- tal. Left hospital on eighth day.
F. 35. Mrs. P. April 3, 1900.	45	W.	Acute attack. Had two slight attacks within the year.	Operation third day of attack. Appendix acutely inflamed. Gangrenous spot near tip.	R.	University Hospi- tal. Dr. Ruffin.
M. 36. Mr. McE. May 4, 1900.	30	W.	Very acute attack. High fever. Rapid pulse. Nausea, &c.	Appendix perforated. Circumscribed abscess containing 8 ounces pus and a fecal concretion. All adhesions broken up. Abdomen flushed. Gauze drainage.	R.	Emergency hospi- tal. Dr. Jackson.
M. 37. Mr. B. June 6, 1900.	20	W.	Very acute attack. Temperature 103.5, pulse 120. Severe pain.	Operation 28 hours from onset. Appendix gangrenous. Not ruptured. Stump inverted. No drainage, wound reopened on seventh day. Perforation of caecum as large as a silver half dollar. Not at stump of appendix. Sutured. Gauze drain.	R.	Dr. D. K. Shute. University Hospital.
M. 38. Mr. H. June 21, 1900.	35	W.	Patient had acute at- tack. Brought to hos- pital two weeks after onset.	Appendix ruptured. Circumscribed abscess.	R.	Dr. S. C. Cox. Pro- vidence Hospi- tal. Slow recovery. Con- plicated by phlebitis of left leg and fecal fistula, which per- sisted for a year.
M. 39. Mr. S. July 27, 1900.	30	W.	Acute attack. Mod- erate fever. Had several previous attacks.	Appendix ruptured. Circumscribed abscess. Stump inverted. No drainage.	R.	Dr. Simpson, Ma- nassas, Va. Garfield Hospital.
M. 40. J. L. Feb. 12, 1901.	35	W.			R.	Dr. Win. L. Miller. University Hospital.

Name and date.	Sex	Age	Color	Symptoms and description.	Condition found.—Operation.	Result.	Remarks.
41. E. G. March 6, 1901.	M.	22	W.	Recurrent case. Has had six or seven mild attacks.	Catarrhal appendix. McBurney incision. Stump inverted. No drainage.	R.	University Hospital. Slight superficial infection. Not serious.
42. C. Y. March 17, 1901.	M.	9	W.	Acute attack. Perforation. Abscess not well circumscribed.	Operation 12 hours from onset. Beginning diffuse peritonitis.	R.	Emergency Hospital.
43. Mr. Y. June 5, 1901.	M.	32	W.	Recurrent case. Many previous attacks. Severe pain and tenderness. Temperature 101, pulse 108.	Appendix much thickened and fibrous, buried under caecum and covered by dense, smooth, old adhesions. No drainage.	R.	University Hospital. Appendix hard to find. May have been retroperitoneal.
44. M. J. June 5, 1901.	F.	23	C.	Third acute attack. Previous ones mild. This one quite severe.	Appendix gangrenous at tip, and surrounded by $\frac{1}{4}$ ounce pus. McBurney incision. No drainage.	R.	Dr. Wm. N. Fisher. Emergency Hospital.
45. L. P. June 10, 1901.	F.	14	W.	Very acute attack. High fever. Pulse 130. Respirations rapid and shallow.	Appendix perforated. Imperfectly circumscribed abscess with several pockets. Adhesions soft. McBurney incision. No drainage.	R.	Dr. W. N. Fisher. Dr. F. R. Hagner. Operation at patient's home.
46. A. C. July 10, 1901.	F.	26	W.	Fourth or fifth mild attack.	Catarrhal appendix. McBurney incision. No drainage.	R.	Emergency Hospital.
47. Mrs. M. July 13, 1901.	F.	31	W.	Chronic case.	Appendix thick and fibrous. Nearly occluded at base.	R.	University Hospital.



F.	25	W.	Acute attack with gradual onset. Mistaken at first for typhoid fever. I saw this case in consultation with Dr. Rudin about the third week, and did not think it was appendicitis. Dr. R. finally made the diagnosis by blood examination. No Widal reaction. No Widal reaction. Marked leucocytosis.	Operation 4 weeks from onset. Appendix perforated. Circumscribed abscess.	R.	Dr. Ruffin. University Hospital.
48. Miss A. E. Aug. 5, 1901.						
49. Mrs. E. Aug. 16, 1901. 50. J. M. Oct. 1, 1901.	35	W.	Acute attack.	Operation about 18 hours from onset. Appendix much inflamed, showing spot of beginning gangrene. No drainage.	R.	Dr. L. F. Luckett. Garfield Hospital.
51. J. H. Oct. 2, 1901.	30	C.	Acute attack. Temperature 103, pulse 120.	Operation on 3d day. Appendix perforated. Circumscribed abscess. Gauze drainage.	R.	Emergency Hospital.
52. T. K. Nov. 14, 1901.	44	W.	Admitted in 3d week of an acute attack; temperature 100, pulse 120.	Circumscribed abscess, containing a pint of pus and remnant of appendix, opened. Gauze drainage.	R.	Emergency Hospital.
53. Mr. McL. Jan. 3, 1902.	27	W.	Very acute attack. Admitted 18 hours from onset with temperature 103.5, pulse 110, whole abdomen tender.	Gangrenous perforation at base. No adhesions. Dirty fluid in peritoneal cavity. Whole small intestine much inflamed. Gauze drainage.	R.	Emergency Hospital.
	34	W.	Chronic case. Several mild attacks. Recovery never complete.	Appendix bent at sharp angle in middle; thickened and fibrous.	R.	University Hospital.

Name and date.	Sex.	Age.	Color.	Symptoms and description.	Condition found.—Operation.	Result.	Remarks.
54. Mr. S. Jan. 6, 1902.	M.	28	W.	Moderately severe acute attack. Admitted 3d day.	Appendix perforated. Circumscribed abscess. McBurney incision. No drain.	R.	Emergency Hospital.
55. Mrs. B. Jan. 26, 1902.	F.	40	W.	Strangulated femoral hernia.	Appendix thickened and inflamed, and part of caecum in hernial sack. Appendix removed.	R.	Emergency Hospital.
56. Mrs. B. Feb. 8, 1902.	F.	38	W.	History of ovarian pain and tenderness for several years. Getting worse. Mass in neighborhood of right ovary. Smaller one on left.	Median incision. Both ovaries cystic. Right tube, ovary and appendix bound together by adhesions. All inflamed. Both tubes and ovaries and appendix removed. No drain.	R.	Dr. Tubman. University Hospital.
57. Mr. C. Mar. 24, 1902.	M.	35	W.	Recurrent attacks of pain in right ing. region. Last one quite severe. Admitted after recovery from last attack.	No appendix could be found, although there were no adhesions, and the caecum, which was unusually movable, was drawn out and carefully examined by Dr. Geo. Tully Vaughan and myself. Mesenteric glands enlarged in neighborhood of caecum.	R.	Dr. Coblenz. Emergency Hospital. I believe this was a case of localized tubercular peritonitis. The patient made a good recovery, but was slow regaining strength. No more attacks of pain.
58. Mr. S. Apr. 11, 1902.	M.	16	W.	Very acute attack. Operation refused until 3d day, when case seemed desperate.	Appendix perforated. Adhesions soft and imperfect. Diffused peritonitis. Abdomen flushed and drained.	R.	Dr. Burch. Emergency Hospital.
59. Mr. L. Apr. 5, 1902.	M.	25	W.	Acute attack, moderately severe.	Operation several days after onset. Appendix turned upward, with tip adherent to liver. Gangrenous at tip. Streak of pus extending from liver to lower pelvic cavity. Appendix removed. Stump inverted. Guaze drainage.	R.	Dr. D. K. Shute. Emergency Hospital. This patient recovered from the operation, but developed an abscess of the liver, from which he died about 4 months later.

60. L. W. Apr. 22, 1902.	F.	26	W.	Very nervous patient. Had had attacks of abdominal pain for 5 or 6 years, more and more frequent and severe. Diagnosis not clear, but operation advised by several surgeons. Third attack. Moderate severity.	Appendix nearly normal in external appearance, but showed marked catarrh of mucous membrane. McBurney incision. No drainage. The intestines were the thinnest I have ever seen, and there was well-marked enteroptosis.	R.	Emergency Hospital. This patient was much relieved, but still has indigestion and colicky pains in abdomen.
No. 61. W. R. May 3, 1902.	M.	11	W.		Appendix thickened and inflamed. Not perforated. McBurney incision. No drainage.	R.	Dr. Keen, Hamilton, Va. Dr. W. N. Fisher. Operation at patient's home.
Mr. C. June 15, 1902.	M.	25	W.	History of recurrent symptoms. Numerous attacks during past year just recovered from a sharp attack when admitted to hospital. Case similar to 57 and sent in by same physician. Severe acute attack.	No appendix could be found, although caecum was freely movable and was drawn well out of wound and thorough search made. No adhesions. Mesenteric glands enlarged near caecum. Several enlarged glands removed. No drainage.	R.	Dr. Coblenz. Emergency Hospital. Patient made an excellent recovery and has had no attacks since.
63. J. J. June 16, 1902.	M.	16	C.		Circumscribed abscess. Perforation. Gauze drainage.	R.	Dr. Fisher. Emergency Hospital.
64. Mrs. B. July 17, 1902.	F.	36	W.	Severe acute case. Treated several days by homeopath. Patient very ill. Temperature 102, pulse 140. Respiration, 36. Moderately severe acute attack.	Operation on fifth day. Large circumscribed abscess. Perforation. McBurney incision. Irrigation. No drain.	R.	Emergency Hospital.
65. Miss C. July 26, 1902.	F.	23	W.		Appendix much inflamed but not perforated. McBurney incision.	R.	Dr. D. P. Hickling. Washington Asylum Hospital.
66. Mr. B. July 29, 1902.	M.	18	W.	Severe case second day.	Gangrenous appendix. Dirty fluid and pus in abdomen. Slight adhesions. Diffuse peritonitis. McBurney operation.	R.	Emergency Hospital.

Name and date.	Sex.	Age.	Color.	Symptoms and description.	Condition found.—Operation.	Result.	Remarks.
67. Mr. M. Aug. 8, 1902.	M.	20	W.	Severe acute attack.	Appendix contained gangrenous spot. Not perforated. No drain.	R.	Dr. D. Olin Leech. Garfield Hospital.
68. Mr. F. Aug. 12, 1902.	M.	24	W.	Sharp acute attack.	Catarrhal appendix removed through McBurney incision.	R.	Dr. Thomas, Aldie, Va. Emergency Hos- pital.
69. — K. Aug. 16, 1902.	M.	31	C.	Sharp attack of ap- pendicular colic. Tem- perature 101.	Catarrhal appendix removed through McBurney incision.	R.	Dr. Shute. Emer- gency Hospital.
70. J. W. Sept. 11, 1902.	M.	30	W.	Chronic case.	Thickened fibrous appendix. Old strong ad- hesions. McBurney operation.	R.	Dr. A. P. Osborne. Dr. Hagner.
71. L. R. Oct. 9, 1902.	M.	12	W.	Patient very ill. Brought to hospital about seventh day.	Abscess containing quart of pus opened and drained. Appendix had sloughed off.	R.	Dr. Taylor. Emer- gency Hospital.
72. Dr. P. Oct. 11, 1902.	M.	25	W.	Just recovered from sharp attack of catarrhal appendicitis.	Catarrhal appendix removed. McBurney operation.	R.	Emergency Hos- pital.
73. Mr. F. Oct. 23, 1902.	M.	19	C.	Acute attack.	Operation 24 hours from onset. Gangrenous appendix, not perforated. No drain.	R.	Emergency Hospi- tal.
74. Miss P. Nov. 21, 1902.	F.	25	W.	Recovering from acute attack which had kept her in bed 10 days. Temp. normal.	Catarrhal appendix removed by McBurney operation.	R.	Emergency Hospi- tal.
75. J. B. Dec. 21, 1902.	M.	30	W.	Inguinal hernia.	Operation for hernia. Appendix in sack. Much indurated and closed at caecal end.	R.	Emergency Hospi- tal.



76. Miss A. Feb. 11, 1903.	F.	25	W.	History of chronic appendicitis of a year or two.	Chronic thickened appendix, adherent to right ovary, which was cystic and much enlarged. Pediculated fibroid of uterus, size of a hen's egg. Appendix, ovary and tube and tumor removed through McBurney incision.	R.	Dr. Osborne, Berryville, Va. Garfield Hospital.
77. Miss McF. Feb. 14, 1903.	F.	28	W.	Recovering from sharp attack of appendicitis when first seen.	Operation just after recovery from acute symptoms, Catarrhal appendix and two pediculated fibroids of uterus removed through McBurney incision.	R.	Emergency Hospital.
78. H. M. Mar. 7, 1903.	M.	14	W.	Very acute attack.	Operation 12 hours from onset. Appendix gangrenous. Small gauze drain.	R.	Dr. Ruffin. University Hospital.
79. J. M. Mar. 10, 1903.	F.	18	W.	Fourth attack of sharp appendicular colic. Temp. 99.5.	Catarrhal appendix removed by McBurney operation.	R.	University Hospital.
80. H. M. Mar. 12, 1903.	M.	14	W.	Same as No. 26. Remained well after previous operation nearly 4 years. Then had a severe acute attack. Temp. 104, pulse 130.	Operation 4th day. Whole abdomen filled with soft adhesions and pockets of pus. Stump of appendix $\frac{3}{4}$ inch long left from 1st operation. Gangrenous and perforated. Stump removed. Abdomen cleansed and drained with gauze.	R.	Dr. Keen, Hamilton, Va. Dr. C. S. White.
81. Mr. C. Mar. 20, 1903.	M.	35	W.	Severe acute attack. Temp. 102, pulse 120.	McBurney incision. Appendix gangrenous. Surrounded by one oz. pus. Stump inverted.	R.	Dr. Riley. Emergency Hospital.
82. Mr. C. Mar. 22, 1903.	M.	19	W.	Very severe acute case. Operation 48 hours after onset.	Gangrenous appendix, turned up and adherent to liver. Diffuse peritonitis well advanced.	D.	Dr. Bushong, Summit Point, West Va. Emergency Hospital. Died with general peritonitis.
83. M. J. Apr. 2, 1903.	F.	20	W.	History of recurrent attacks. Operation in interval.	McBurney incision. Appendix, right ovary and tube thickened and inflamed. Removed appendix, ovary and tube.	R.	Dr. Tubman. University Hospital.

Name and date.	Sex.	Age.	Color.	Symptoms and description.	Condition found.—Operation.	Result.	Remarks.
84. W. O. I. May 27, 1903.	M.	37	W.	Recovered nicely from Bassini operation for hernia, and 3 days after leaving hospital returned with sharp attack of appendicitis on opposite side. Hernia was left inguinal.	Operation about 18 hours after onset. Appendix had gangrenous spots, but was not ruptured. Gauze drain.	R.	Dr. Ruffin. University Hospital.
85. Mr. B. May 29, 1903.	M.	38	W.	Chronic case of long standing.	Appendix wrapped up in omentum and dense adhesions. Constricted in middle. Tip contained pus. McBurney operation.	R.	Dr. Wm. L. Miller. University Hospital.
86. B. J. June 23, 1903.	F.	19	W.	Had severe acute attack. Tenderness persisted. Patient hysterical.	Appendix red, thickened and soft. Not ruptured. McBurney incision.	R.	Dr. Tubman. University Hospital. Patient had severe hysterical attacks for several months after recovery from operation.
87. Mrs. F. June 23, 1903.	F.	28	W.	Chronic tubo-ovarian inflammation and right inguinal hernia.	Both tubes and ovaries removed through median incision. Appendix removed through incision for Bassini operation. Appendix much indurated.	R.	Dr. Miller. University Hospital.
88. June 27, 1903.	F.	12	W.	Child very ill. Temperature not high, but pulse very rapid and soft.	Gangrene of appendix, both ovaries and tubes, broad ligament, fundus of uterus and about 3 feet of small intestine.	D.	University Hospital. Died a few hours after operation.
89. Mr. C. July 7, 1903.	M.	40	W.	History of severe attack. Condition bad, and rapidly growing worse.	Operation about 5th day. Very large appendix, gangrenous and nearly detached at base. Diffuse peritonitis. No adhesions.	R.	Dr. Wade Atkinson. Patient very ill first 36 hours. Wound suppurated freely.
90. Miss H. July 16, 1903.	F.	24	W.	3d or 4th attack. Mild.	Catarrhal appendix.	R.	University Hospital.

91. Miss B. Sept. 3, 1903.	F.	13	W.	Acute attack. Quite severe.	Appendix perforated and gangrenous. Circumscribed abscess. Beginning diffuse peritonitis.	R.	Dr. Keech. University hospital.
92. Mrs. B. Sept. 3, 1903.	F.	24	W.	Chronic tubo-ovari- tis and appendicitis.	Right tube, ovary and appendix thickened, inflamed and bound together. All removed.	R.	Emergency Hospital.
93. —McA. Sept. 10, 1903.	F.	4	W.	Sharp acute attack. Sent to hospital by Dr. Keen, of Hamilton, Va., about the 3d day.	Appendix perforated. Circumscribed abscess. McBurney incision.	R.	Dr. Keen, Hamilton, Va. Emergency Hospital.
94. J. R. Sept. 14, 1903.	M.	19	C.	Chronic recurrent case. Sharp attack.	Catarrhal appendix, thickened and clubbed at tip. McBurney operation.	R.	Emergency Hospital.
95. Miss J. Oct. 14, 1903.	F.	23	W.	Acute attack, quite severe. Had several slight attacks before.	Catarrhal appendix. McBurney operation.	R.	Emergency Hospital.
96. Miss P. Oct. 27, 1903.	F.	25	W.	Very severe attack. 2d day, 1 P. M., temp. rose to 104, pulse 130. Respiration shallow. General appearance bad.	Operation next morning, about 50 hours from onset. Appendix showed spot of gangrene, not perforated. Beginning general peritonitis.	R.	Dr. G. D. Bailey. University Hospital.
97. —McA. Oct. 28, 1903.	M.	6	W.	Brother of No. 93. Sent by Dr. Keen. Chronic case. Tumor easily felt and quite tender.	Appendix in round, hard ball of adhesions. Fibrous and constricted in several places.	R.	Dr. Keen, Hamilton, Va. Emergency Hospital.
98. Miss H. Nov. 17, 1903.	F.	24	W.	Acute attack. Temp. 102-3, pulse 120. Nausea severe.	Very red, inflamed, thickened and soft appendix, not perforated. McBurney incision. Stump inverted.	D.	Dr. Keen and Dr. Milton. Patient did very well for two days. Temp. and pulse normal. Died suddenly 3d day. Cause unknown. Operation done at patient's home, Hamilton, Va.

CASE OF FRACTURE-DISLOCATION OF THE SPINE.  
LAMINECTOMY.\*

BY EDWARD A. BALLOCH, A. M., M. D.

Washington, D. C.

Lucy F., a colored girl, 18 years of age, was brought to the Freedmen's Hospital on the afternoon of November 9, 1903, with the following history: A few hours before entering the hospital she had been injured in the following way: She was in the act of getting into an elevator, and had her right foot and the right half of her body in the car when the elevator started, crushing her between the floor of the car and the top of the doorway.

Examination showed a well-nourished girl, eyes clear, expression anxious. Was most comfortable in a prone position. Complained of pain in the right shoulder and thorax. Marks of recent bruises over right side of chest. Palpation revealed fracture of the 7th and 8th ribs on the right side, near the middle. Between the 10th and 11th dorsal vertebrae there was a perceptible gap, the 11th vertebra being on a distinctly lower level than the 10th. Complete loss of sensation and motion in both lower extremities. Paralysis of bladder and rectum, with retention of urine and feces. Deep ecchymosis of skin of lower abdomen, vulva and upper front part of thighs. Large hematoma in right labium majus. Blood was flowing from the vagina, evidently coming from a laceration which was seen in the perineum at the fourchette. Patient stated that she had not menstruated for three months, but the uterus was not examined as it was deemed best not to disturb her more than was necessary.

I saw her November 10. The fracture of the spine was readily made out, as the difference in level between the two vertebrae was perceptible to the eye as well as to the touch, and the two portions of the spine could be moved on each other by gentle pressure. Her general condition was good, and a laminectomy was decided on, on the ground that if the cord was severed it would do her no harm, while if the cord was not irretrievably damaged an early removal of pressure on it would give her a chance for recovering from the paralysis. The operation was done November 11. Upon reaching the spine the spinous process of the 11th dorsal vertebra was found to be detached from the

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\*Reported with specimen to the Medical Society of the District of Columbia, December 2, 1903.



arches, and quite loose. It was cut away, and the laminae of the 10th, 11th and 12th vertebrae removed with Keen's rongeur. The dura was intact, and there was pulsation in the cord down to the level of the 10th vertebra. It was not deemed wise to open the dura; and, as examination did not disclose any more loose or fractured bone, the wound was closed with drainage. Hemorrhage was quite troublesome, particularly from the extradural fat, and, for a time, obscured the view of the dura.

Extension was made by placing the patient on two tables, and drawing them slowly apart until the deformity was reduced. A plaster cast was then applied with a trap over the location of the wound. On the 13th the hematoma was opened by the house surgeon. On exploring the cavity left after evacuating the blood he detected at the bottom of the wound, loose and fractured bone, which he thought due to a fracture of the ischium. On the 14th she aborted a three-months fetus. For a few days her condition was favorable, and strong hopes were entertained of her recovery; but she grew gradually weaker, and died from exhaustion on the 16th, 8 days after the injury and 6 days after operation.

Through the courtesy of Dr. Glazebrook, I was permitted to see the autopsy in this case and to secure the specimen. The autopsy showed on the right side fracture of the 7th and 8th ribs, a dislocation of the 9th and 10th ribs from their cartilages and a detachment of the 11th rib from the spine. On the left side the 11th and 12th ribs were found to be torn away from the spine. There was a slight rupture on the convexity of the right lobe of the liver, and the tissue of the liver around it was much softened. All the tissues of the lower abdominal wall were saturated with blood and serum. There was a fracture of the coccyx, but none of the ischium. The dislocation of the vertebrae had been perfectly reduced and the bodies were in line. Dr. Baker was kind enough to saw out for me the affected part of the spinal column, and I have the pleasure of presenting it for your inspection.

Laminectomy for fracture of the spine is an operation attended with a large mortality, not only on account of the severe nature of the injury for which it is done, but also because the fracture is seldom the only condition with which we have to deal. This is well illustrated by the present case. If the fracture of the spine had been the only lesion, it is fair to presume that the patient would have

recovered. As it is, it is a marvel that she lived as long as she did.

The mortality in this operation varies also according to the region of the spine which is affected. It is least in operations on the lumbar spine, and increases steadily as we go up the spine until, in the cervical region, it approaches 100 per cent. Indeed, Gallaudet (*Annals of Surgerv*, vol. XXV, p. 28,) recommends that operations on the lumbar spine be placed in a class by themselves in endeavoring to estimate the true mortality of this operation.

Another fact of importance in this connection is the desirability of early operation. The weight of opinion among those who have had the largest experience in this class of cases, and with operations for their relief, is that the sooner the pressure is removed from the cord the better is the prospect for an ultimate restoration of motion and sensation in the affected parts. Where the cord is originally intact, the pressure on it of the displaced laminae for any length of time will lead to its degeneration.

In the present case, up to the time of death, there was no evidence of returning motion or sensation, but the time was too short to enable one to say what would have happened had she lived.

At all events it is clear that the operation was needed, and that in itself it did the patient no harm.

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The ANNALS is sent to about 20 journals. The following have been received in exchange: *Providence Medical Journal*, *Buffalo Medical Journal*, *Albany Medical Annals*, *Annals of American Gynecology*, *New York State Journal of Medicine*, *Louisville Medical and Surgical Journal*, *Journal of the Michigan State Medical Society*, *Saint Louis Medical and Surgical Journal*, *Dallas Medical Journal*, *Pacific Medical Journal*, *California State Journal of Medicine*, and *Northwest Medicine*.

The ANNALS would be pleased to exchange with any other reputable journals.

## PRESIDENT'S ADDRESS.

A REVIEW OF THE WORK OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA DURING THE PAST EIGHTY-FIVE YEARS.\*

By GEORGE M. KOBER, M. D.,

Washington, D. C.

Our Society on the 16th of February next will reach the ripe old age of 85 years, and it is a pleasing reflection that only eleven other Medical Societies in the United States are older in years, the oldest being the New Jersey Medical Society, which was organized in 1766, although our Society has the proud distinction of being the oldest scientific body chartered by an act of the Congress of the United States.

The membership has increased with the growth of the city. In 1819, it was 21; in 1838, 30; in 1874, 136; in 1884, 148; in 1894, 214, while today it is 354. (According to Dr. W. W. Johnston, the average attendance upon the meetings has been as follows; In 1838, eight; in 1844, eight; in 1854, seven (only two meetings held); in 1864, eighteen; in 1874, nineteen; in 1884, twenty-four, and in 1893, forty-eight.) In 1903 it has been sixty-three.

It can be safely asserted that the proceedings of the Society during the 85 years of its existence reveal a careful record of the history and progress of Medicine during that time, besides being the repository of clinical histories and pathological specimens many of which are of great historical and scientific value.

The pathological specimens and case histories presented by Dr. Lamb alone would fill several creditable volumes, and if some of our younger members would take the time to analyze this material, valuable conclusions might be drawn from such a collection of clinical and pathological findings.

When we recall the fact, that the achievements in Medicine and Surgery have been especially brilliant during the past three or four decades, we can appreciate how full of interest the various meetings must have been to the members. I well remember the time when, not over thirty years ago, we talked of miasma and contagia, whose natures had never been demonstrated to our senses until Pasteur, Koch and others revealed to us the new

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\* Annual address, December 16, 1903.

science of Bacteriology, with its subsequent triumphs in the etiology, diagnosis and treatment of disease. The discovery of Anaesthesia by the use of nitrous oxide gas, ether and chloroform, dates back to the years 1842-1847. Laennec designed the stethoscope in 1819, the same year our Society was organized. Avery produced his first laryngoscope in 1846. Professor Helmholtz invented the ophthalmoscope in 1851, and Marey gave us the sphygmograph in 1860, while the endoscope, cystoscope, the hypodermatic administration of drugs, the revised use of the clinical thermometer, the X-ray apparatus, with Salvioni's "cryptoscope", and Edison's fluoroscope and the Finsen light are of comparatively recent origin. Iodine was first used as a medicine in 1819, and quinine was discovered by Pelletier and Cavendou in 1820. Chloral hydrate, although discovered by Liebig in 1832, was first introduced by Liebreich in 1869. The scientific use of germicides began with Lister's antiseptic era in 1865.\*

It may not be amiss to recall the fact that Alexis St. Martin, the famous Canadian, with his gastric fistula, was presented to the Society at a special meeting on May 14, 1856. While this is a historical fact of some interest to every medical student, it has a special interest to me, as it was my good fortune, in 1873, to unearth, in the archives of the Surgeon General's office, Dr. Beaumont's original letters and reports, referring to his experi-

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\* Among some of the other American achievements since 1819, may be mentioned Jameson's excision of the superior maxilla in 1820. Valentine Mott's amputation at the hip joint in 1824; his first successful ligation of the common iliac in 1827, and his operation for extirpation of the entire clavicle in 1828. Physick's invention of the tonsillotome and of absorbable ligatures, also his celebrated lithotomy operation on Chief Justice Marshall in 1827; Harris' extirpation of the tongue in 1830; Crosby's amputation of both clavicle and scapula in 1838; Post and Rogers' ligation of the subclavian artery in 1847, and Knight's digital compression for the cure of aneurism in 1848. Detmold trephined for brain abscess in 1849; Bowditch was the author of thoracentesis in 1850, and Warren of paracentesis. Carnochan's resection of the superior maxilla beyond Meckel's ganglion for neuralgia was first performed in 1858. Walcott of Milwaukee was the first to perform nephrectomy, and Boggs of Indiana cholecystotomy, while the work of Sims, Fenger, Murphy and Senn in abdominal surgery is too well known to require elaboration. The literature on appendicitis has been especially enriched by the work of Barker, Sands and Fitz, and the first appendectomy was performed January 4, 1885, in this country.—(Abstracted from an address by Dr. W. W. Grant, *Jour. Am. Med. Association*, December 5, 1903.)



ments on Alexis St. Martin, which resulted in so great a contribution to the physiology of digestion.

We have heard the communication on the etiology of yellow fever by the lamented Walter Reed, who, with his associates of the Commission, Drs. Carroll, Agramonte and Lazear, and starting from Finley's theory of the agency of the mosquito in the dissemination of this disease, made a series of painstaking experiments, and demonstrated conclusively the causal relation of *Stegomyia fasciata* to yellow fever epidemics, and disproved the theory that the disease could be conveyed in fomites, or that it was contagious in the ordinary acceptance of the term.

The practical value of this discovery, which, in point of importance and far reaching beneficence, ranks only second to Jenner's discovery of vaccination, has been proved by the eradication of this scourge from Havana, as testified to by Col. Gorgas, in his paper read before this Society March 18 of this year.

The economic importance of this discovery must be apparent when it is remembered that since 1793 the disease has been the cause of no less than 100,000 deaths, 41,348 of which occurred in New Orleans, 10,038 in Philadelphia and 7,759 in Memphis. Between 1853 and 1900 it caused 35,952 deaths at Havana. Since the practical application of the knowledge gained by the work of Reed and his associates there has not been a single case in that city for the past two years, except those that had been imported from other countries, chiefly from Mexico.\* In the light of these facts we can appreciate the full meaning of General Leonard Wood's statement when he told us at the Reed memorial meeting: "The results to humanity are incalculable and far reaching. It is safe to say that this discovery has resulted in saving each year more lives than were lost in the war with Spain, and in a saving to commerce, and especially to the southern portion of our country, of an amount equal to the cost of the war with Spain."

The theory that malarial infection results from the bites of mosquitoes was ably supported by our fellow member, Dr. A. F. A. King, February, 1883, in a paper read before the Philosophical Society, and although it is claimed that Dr. John Crawford, of

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\*Dr. John Guitéras, Conference of State and Prov. Board of Health of North America held at Baltimore, October 23 and 24, 1903.

Baltimore, as early as 1807 suggested this connection, and later, in 1848, Dr. Josiah Nott, of Mobile, had urged the mosquito as a cause of malaria and yellow fever, it was not until 1895-1897 that the theory was demonstrated by the labors of Manson and Ross.

There is every reason to believe that Dr. King arrived at his conclusion independently of former writers, and it must be a great satisfaction to him to know that while there are still some problems to be solved in connection with the subject, the main factors for the dissemination of malaria have been proven, viz : The parasite in human blood and the anopheles mosquito ; either alone is not sufficient. The anopheles may of course exist where malaria is unknown, but where malaria exists there are also mosquitoes. Dr. Manson in 1900 subjected his son, aged 23, to the bites of infected mosquitoes brought to England from Italy, and within a few days after the third inoculation typical symptoms of tertian intermittent fever appeared and Laveran's organism was found in the blood. According to Harrington the Japanese Government in 1901 subjected two battalions of soldiers stationed together in Formosa to an interesting experiment ; one battalion was completely protected from mosquitoes for 161 days during the malarial season without a single case, while the other battalion not so protected furnished 259 cases. It will be remembered that Laveran, a French army surgeon, discovered the malarial parasite in 1880, and the first confirmation in this country of the amoeboid organism in the blood of malarial fever patients was made by one of our members, General Sternberg, in the pathological laboratory of the Johns Hopkins University in March, 1886.

Those who are familiar with the work and thought of some of our deceased members, like Lindsley, Hall, Young, Toner, Morgan, Eliot, Garnett, Drinkard, Ashford, Prentiss, Lovejoy, Busey and Johnston, must have been strongly impressed with the individuality of these men. Their writings and discussions were characterized by thoroughness, logic and splendid diction, qualities which could not fail to instruct and stimulate the younger members to similar efforts. It is also a matter of satisfaction to know that three of the Presidents of the American Medical Association were chosen from members of this Society, viz : Lindsley, Toner and Garnett.

Apart from this, one of the Presidents, Alexander McWilliams, was the first surgeon to use adhesive plaster, in the almshouse

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hospital, for making extension in fractures; another President, Dr. Liebermann, in 1840, was the first in this country and in this city to perform the operation for strabismus, having received special training under Dieffenbach. Dr. William P. Johnston, another President, recognized the first case of enteric fever in Washington in the wards of the Infirmary in 1846, and, according to his son, Dr. William W. Johnston, the disease at that time was so rare, that an active practitioner in the city said, in 1848, that he had never seen a case.

One of the chief glories of this Society are the weekly meetings, for nine months in the year with almost unabated interest.

It is not an easy matter to supply a scientific program which can and will appeal to every member, but I venture to say that no other medical organization presents evidence of greater activity and better work. Indeed, many of our visitors from larger medical centers are astonished at the number of meetings, the average attendance and the character and amount of work. There are, to be sure, a number of men who cannot appreciate the educational advantages of these weekly gatherings; but for all these I have but one answer, and it is this, that the merits of every prominent medical man in the city have been demonstrated in this Society, and every man of note has also been conspicuous for faithful attendance upon its meetings. Personally I wish to acknowledge my great obligation to the Society for the many profitable evenings during my thirty years of membership, nor can I refrain from declaring that whatever success many of us have attained, is due to the precepts and example of the older members of this body, whose steadfast purpose to keep abreast with the progress of medical science could not fail to make a deep and lasting impression, especially at a time when our mind was still plastic and susceptible to external and internal impressions.

It would, indeed, be invidious to call attention to the many excellent papers presented to the Society, and the valuable discussions resulting therefrom. We have had the pleasure during the past session to listen to the communications of Drs. de Schweinitz and Salmon, whose researches on the possibility of transmission of bovine tuberculosis to man will go far towards disproving the dicta of Koch, and are therefore of unusual interest and importance.

While the transactions of this Society compare favorably with

those of similar societies elsewhere, their value would be very much enhanced if it were not for the difficulty of securing all of the best communications for publication. It is not improbable that our efforts in scientific work are also somewhat scattered by the organization of a number of younger societies, many of which are doing excellent work, and my only regret is, that the fruits of their labor are not shared by a larger number. The membership in most of these bodies is quite limited, and the author presents his communication to an audience which, with invited guests, scarcely exceeds 20 or 25 in number. Why would it not be more beneficial to invite these several societies to hold most of their scientific meetings with the parent Medical Society? The autonomy of affiliated medical societies should be preserved, and their regular meetings devoted to business and social affairs, while their best scientific work should very properly be presented to a larger audience. A resolution looking towards that end, and contemplating the appointment of a committee to confer with committees from the several societies was offered by me several years ago, and placed upon the table. Nevertheless, there is much reason for believing that the inauguration of such a plan would stimulate collective scientific investigations of certain diseases, good clinical studies, and the practical aspect of the treatment of diseases.

We are all laboring for one great object—the promotion and dissemination of medical truths—and the question which concerns us most is the greatest good to the greatest number, and, indirectly, also the good name and fame of the local profession, “among whom there should be no contention, except that noble contention, or rather emulation, as to who best can work and best agree.”

I believe it is the duty of our members to become prominently identified with national associations, and make themselves felt in the deliberations of these bodies. This is one of the opportunities on the part of the profession at large to judge the character and quality of our men; and, as the time for the medical politician is over, we see in attendance at the meeting of the American Medical Association the leading men of all cities.

In the sharp competition for enrollment in special national societies whose membership is limited the question naturally arises, What has the applicant done to merit recognition? And



it is our duty to recognize at all times that we are debtors to our profession, and should endeavor to discharge that debt by contributions of some value to its literature. How else can we impress the profession at large except by our words and deeds?

It will be remembered that last year an effort was made to inaugurate a Post Graduate school under the auspices of Surgeon General Sternberg. The school was extensively advertised, and yet only two students presented themselves. Such a failure would appear to indicate that the advantages of Washington as a medical center are not known or appreciated elsewhere.

There cannot be a successful concealment of the fact that the reputation of the medical profession of this city is not an enviable one. The causes are manifold, but it is not generally known that up to June 3, 1896, the National Capital was a veritable mecca for quacks; that is to say, men who failed to pass the State examining boards elsewhere could come here and practice, without restriction, one of the most difficult and responsible of all professions. As a result we have over 1,100 so-called physicians in this city. Of these, only 440 are members of the Medical Association, and 51 are homoeopaths. It must be evident that the remainder contains a large number of men of questionable professional attainments, and, since the public is not in a position to know who is who, we need not wonder that, with such a preponderance of unqualified men, the entire medical profession of the city is regarded with suspicion. The law of June 3, 1896, to license physicians and surgeons after due examination, and to punish persons violating the provisions of the act, was not retroactive, and the community has not been purged of the ubiquitous quack, but the law will protect the inhabitants from future additions.

In view of this explanation, we have at least a right to expect that patients and their friends, before condemning the profession as a whole, should take special pains to inquire into the fitness of their physician. As it is now, the public are altogether too apt to intrust their lives to men of whom they simply know that they style themselves doctors and advertise liberally, and then judge the standard of the profession by a preponderance of irregular physicians.

In this connection permit me to call attention to the fact that patients from this city frequently find their way to the hospitals

of Baltimore, Philadelphia or elsewhere. These patients are sent there by their family physicians, probably because these are not aware that there are men at home fully competent to diagnose and treat these obscure cases. It is well known that in some instances the family physician actually urged operative treatment in another city, because "there was no one here who could perform the operation." Such conduct is either due to a most contemptible spirit of jealousy or to the fact that the attending physician has ceased to be a student, ceased his attendance upon medical societies, and therefore does not know the character and extent of the work accomplished by his confrères.

Surely, as a matter of local pride, we should keep in touch with the attainments of our professional brethren, and thus avoid, as far as practicable, the transfer of patients to other cities, which is a tacit acknowledgment that the physicians and surgeons there are men of superior attainments, when, as a matter of fact, the same degree of erudition and skill may be found at home.

It is believed that some of the circumstances referred to, coupled in some instances with a most unjustifiable criticism, have operated to bring the local profession into discredit, and it should be our duty to correct unfavorable impressions when consistent with the facts.

Indeed, it should be our ambition to make the capital of a proud and gigantic nation a medical center, as it has already become a social, scientific and literary center.

If, however, we wish to make Washington a national medical center, like Berlin, London, Paris or Vienna, we ought not to send our local students to Baltimore, Philadelphia, New York or Boston; and if we wish to add to the luster of American medical schools, let us bring them up to the standard of European institutions, and advise our students to remain at home.

I do not mean to imply that all the medical colleges in America are on the same high plane which some have attained, but I do aver that quite a number of our medical schools afford the same advantages which can be derived in Europe.

Professor v. Waldeyer, the Rector of the University of Berlin, during his visit in this city two years ago, expressed himself as more than pleased with the equipment of our local schools and the methods of instruction, and Professor v. Mikulicz-Radecki, in a lecture delivered last month, said he found more fruitful ideas

among the American surgeons than among the French and English, and added, "The time is past when we were the givers and the Americans the receivers."

While it is true that European institutions have heretofore led in original investigations, it was simply due to the fact that all scientific research requires time, patience and money, and as long as American schools were without endowments, the European scientists, having no financial cares, could devote their entire energies to painstaking investigation, and therein lies the secret of their success. That American intellect under similar conditions can penetrate and unravel the mysteries of scientific problems, is evinced by the creditable amount of original work done either in Government laboratories or in endowed institutions. Among the conspicuous examples are Theobald Smith's investigations in the etiology of Texas fever, Salmon's researches in hog and chicken cholera and protective inoculations, de Schweinitz's work in immunization and the identity of human and bovine tuberculosis, Stiles' labors in the field of animal parasites, Reed's achievement in the etiology of yellow fever, Councilman's discovery of the etiological factor of variola, and the more recent success of Novy and McNeal of Ann Arbor in the artificial cultivation of pathogenic protozoa; they have found that the trypanosoma of rats and the tsetse-fly disease may be grown in the condensation fluid of agar mixed with rabbit's defibrinated blood, and there is every reason to hope that this may prove to be but the beginning of successful cultivations of other micro-parasites of animal origin, problems which have heretofore baffled the skill of students of pathogenic protozoa the world over.

*The Medical Society in Relation to Public Health.*—The Medical Society has always evinced a deep interest in all matters pertaining to public health. Men who come in daily contact with sickness and distress, who face the fury of a midnight storm and the invisible foes of infectious diseases, speaking words of comfort and alleviating human suffering, cannot fail to experience deep sympathy for their fellow-men, which is all the more profound when they realize that many diseases are preventable and much of this terrible suffering unnecessary. These compassionate feelings, inspired by a service to humanity, have stimulated into existence a science which has for its object not only the promotion and preservation of health, but also the prevention of disease. It is a

plant divinely nursed, fed by brotherly love from which it rose at first.

The records of the Medical Society reveal, therefore, as early as 1832, during the cholera epidemic, evidence of activity in matters of public hygiene. In 1846 the subject of vaccination was discussed, and as early as 1850, the Society appointed a committee of three to inquire into the expediency of establishing some system by which a more perfect registration of births and deaths might be effected, and which led to the adoption of rules and regulations by the Board of Health to secure such registration.

The importance of vital statistics is not fully appreciated at the present day, and yet, as remarked by Dr. Billings, "when we wish to study the healthfulness of a city, whether it is getting better or worse, or judge correctly the effect of certain sanitary laws, we should not only know the number of deaths and births, but also the amount and character of the prevalent diseases, together with accurate information as to the number of population of different ages."

Acting upon the lofty principle that the education and betterment of the people in sanitation is not less humane than the healing of the sick, the Medical Society here, as elsewhere, has taken an active part in the elucidation of problems affecting the health of the city, such as the water and milk supply, sewerage, reclamation of the marshes, the cause and prevention of typhoid and malarial fevers, the sanitation of schools, the prevention of tuberculosis, and many other important subjects, and the results obtained during the past ten years are as striking as they are gratifying. The death rate in 1892, ten years ago, was 26.03 and for the calendar year of 1902 it was 19.99. This means a saving of over 1,000 lives a year, or, from the standpoint of the political economist, over \$4,500,000 have been saved to this community.

During the five-year period prior to the enactment of a pure milk law in March, 1895, the number of deaths of children under five years of age was 10,511, as compared with 9,386 for the five years from 1895-1900, a saving of 1,125 lives. The total deaths of children under one year of age in 1893 were 1,649, which have been gradually reduced to 1,235 in 1902, while the total number of births has of course increased. As a matter of fact, the percentage of deaths of children under one year to the



total deaths of all ages has been reduced from 26.94 in 1893 to 21.37 in 1902.

During the past year Congress made provision for the appointment of 12 medical inspectors of public schools, who shall perform their duties under the direction of the health officer. The enactment of the law in its present form is a distinct triumph for the Medical Society, as both the Board of Education and the Commissioners desired the medical inspectors to act under the supervision of the Board of Education, but the Congressional committees finally became convinced by our arguments that such professional duties require also expert supervision, and we may be sure that the efficiency and dignity of this service will be enhanced thereby, and that the prompt detection and isolation of the major and minor contagious diseases in the schools will help to diminish the general mortality rate. The enactment of a law for requiring notification of the minor contagious diseases, like measles, whooping cough, chicken pox, etc., is urgently called for, as they are by no means trivial affections and help to swell our abnormally high mortality rate.

While there has been a gratifying decrease in the so-called preventable diseases, the converse is true of typhoid fever, which has increased from 124 deaths, or a rate of 6.17 per 10,000 in 1884, to 227, or a rate of 7.18 per 10,000 in 1902. Indeed, we almost lead the list of American cities; only Pittsburg and Atlanta have a higher typhoid-fever death rate.

The medical profession has urged for years the extension and completion of the sewerage system and the purification of the water supply. Both of these measures are progressing as rapidly as time and money will permit, and when completed the prevalence of typhoid fever, diarrhoeal diseases and even consumption will be materially decreased. In the case of typhoid fever we may confidently expect a reduction of 50 per cent., in spite of the fact that a large number of cases will always be contracted during the summer months in rural districts, and in a considerable number infection is liable to be spread by the agency of flies and milk, demanding therefore the utmost precaution in the disinfection of excretions. Nor should we omit to enjoin our patients to sterilize their water and milk supply.

It is interesting to note that the death rate from arterio-sclerosis has increased from 0.6 in 1893 to 14.5 in 1902, and the rate from

Bright's disease has also increased from 6.84 to 11.29 per 10,000. There is also an apparent increase in the death rate from diseases of the heart, while no special change is noted in connection with the deaths from cirrhosis of the liver. Similar observations, including also pneumonia, have been made in other cities, and I have elsewhere suggested that possibly our ever increasing "National Drink Bill," averaging 17.68 gallons *per capita*, may be a factor in the development of these diseases, especially since there is reason to believe that the habitual and immoderate use of alcohol, apart from increasing the connective tissue and causing cirrhosis, also produces fatty degeneration, especially of the heart, liver, kidneys and arterial coats, probably because it promotes the conversion of albuminoids into fats. This theory appears to find support by the fact that the ratio between death rates of white to black, while weighing heavily against the colored race in all other diseases, is decidedly less in alcoholism and delirium tremens and in cirrhosis of the liver than among the whites. It is also claimed that few negroes are "hard drinkers," and this is supported by the fact that the admission rate for alcoholism and its results in the United States Army for the decade of 1886-1893 was 42.37 for 1,000 white troops and only 4.89 for colored troops. Similar observations have been made among the European and native (negro) troops of the West Indies, showing an admission rate of 15.6 for the former class and only .6 per 1,000 for the colored troops. From all of which it seems fair to conclude that there apparently exists a racial distaste for alcoholic beverages on the part of the negro, which is also manifested in a lower death rate from diseases believed to be due to the abuse of ardent spirits. It is quite certain that this racial difference does not consist in diminished susceptibility, for, according to Munson, "it is a matter of frequent observation that where colored troops replace white soldiers in a garrison the canteen profits from beer and wine are greatly diminished, while the sales of cigars and confectionery are proportionately increased."

*Prevention of Tuberculosis.*—The death rate from consumption has been gradually reduced from 30.13 in 1893 to 23.69 in 1902, and yet it is a startling fact that 7,909 persons perished from this disease during this period in our city—3,260 white and 4,289 colored.

This disease, because of its economic importance, deserves more

than a passing mention. It is certainly true that tuberculosis is a preventable disease, and if the methods recommended by sanitarians, including the prompt disinfection of the sputa, were generally adopted, this disease, or rather its germs, would soon be eradicated; but until this is accomplished by educational means, in and outside of the profession, we must expect the presence of germs and corresponding danger from infection. In the crusade against this so-called "white plague," however, we should not lose sight of the fact that, in addition to the germ, there must also be a suitable soil for its growth and development. Such a soil is usually found in persons of feeble physique, victims of malnutrition, whose vitality has been lowered from any of the numerous causes which are afloat, whether it be a previous attack of sickness, lack of pure air, sunlight or proper food.

When the germs of tuberculosis are inhaled or ingested with food it becomes a struggle between the microbial invader and the tissue cells, and the result depends upon the survival of the strongest cell, hence the importance of fortifying the system by proper food and habits, fresh air, suitable clothing and environments, which cannot fail to improve the nutrition, and therefore also the resisting power of the body, to the invasion, multiplication and effects of the germs. Such measures will not only prove the most effective preventive, but also the most efficient curative measures in the treatment of this disease. We are altogether too apt to underrate the question of soil or predisposing factors in this disease.

Tuberculosis is far more prevalent in dark, damp and insanitary houses. The only reasonable explanation for this is that the ubiquitous tubercle bacillus, which is destroyed by a few hours' exposure to sunlight, finds here suitable environments for its vitality and growth; dark, gloomy and badly ventilated houses are also usually damp, and damp air abstracts an undue amount of animal heat from the inmates, and in consequence produces catarrhal conditions of the respiratory passages, which, in turn, favor the invasion of the tubercle bacillus.

For all these reasons I consider the condemnation of houses unfit for human habitation and the substitution of sanitary homes of the utmost importance. The erection of healthful homes for wage earners has everywhere lowered the mortality rates. This

is especially true of the Peabody houses and Metropolitan dwellings in London ; and, judging from our limited experience with the houses of the Washington Sanitary Improvement Company, we have reason to hope for similar results ; at all events we have in these houses a population of 330 adults and 175 children, with only one death during the past year, while seventeen children have been born.

In addition to suitable habitations and a correct mode of living, we should protest against the erection of tall buildings which shut out light and air, thus destroying the very object for which broad streets and avenues were created, and bringing us back to the insanitary era of the mediaeval cities and towns with their narrow and winding streets.

A strong plea should likewise be made in favor of more small parks and playgrounds, and a modification of the building regulations, which at present permit of the erection of buildings covering 90 per cent. of the lot. With a continuance of the present system, and the increased growth of our shade trees, there will indeed be danger of shutting out God's heavenly light, which is the most powerful natural disinfectant we possess, and as essential to a proper metabolism of the body as it is to plant life.

Proper attention should also be given to the physical development of our youth, and this is best accomplished by proper training, preferably in the open air, in the public schools. The children of consumptives require special attention, because of the transmission of vulnerable anatomical elements which render them peculiarly liable to the disease, and in choosing a subsequent vocation for them it is important to avoid occupations involving sedentary habits and indoor work, especially in a dusty atmosphere.

Statistics conclusively show that it is quite exceptional for this disease to be the cause of death of those who live in the open air. For the children of well-to-do parents sanitary boarding schools should be established in the country, where, in addition to their mental training, special attention is given to physical culture ; and for the children of the poor we might imitate the example of some of the philanthropic agencies elsewhere by sending them to the country, where they will enjoy the remedial benefits of pure air, sunshine and simple but wholesome food.



In any event, we should encourage out-door life and proper home environments.

In spite of the fact that we have about 700 deaths from consumption a year, mostly among the poorer classes, there is, with the exception of a few beds in the Almshouse Hospital, no place in this city where a consumptive can find shelter, and every effort should be made to provide such accommodations in connection with the Municipal Hospital, the site for which is admirably located, on account of its remoteness from the contaminating influences of a city atmosphere. Indeed, I am convinced that our meteorological conditions would favor the establishment of private hospitals for consumptives upon the sandy elevations and pine region almost anywhere within the limits of the District. The question of treatment in cases where the destructive changes in the lungs have not advanced too far is almost wholly dietetic and hygienic, consisting of pure air, good food, proper clothing, exposure to sunshine and out-door life; and there is no good reason why the results from such regimen should not be as beneficial here as elsewhere.

In grouping the 7,909 deaths from pulmonary tuberculosis by months for 10 years, it is found that April, May, January and March furnish the largest number; the average for April being 74.5 and for May 70.6; a sharp decline to 57.8 is observed in June, and, as this affects both races, it would be interesting to find a satisfactory explanation.

In investigating the meteorological conditions, I find that the mean relative humidity is lowest during months when the deaths from consumption are highest, and that the prevailing winds are from the polar regions. While north winds and dryness of the atmosphere cause an increased amount of cough and irritation, doubtless the result of increased evaporation, these facts alone do not offer a complete explanation for the abrupt drop from 74 deaths in April, and 70 in May, to 57 in June. It is not improbable, however, that the pneumonia and bronchitis season of January, February, March and April, combined with bad housing conditions, may produce many cases of so-called acute tuberculo-pneumonia, and thus swell the mortality from plithisis.

*Prevalence of Pneumonia.*—Whatever may be said on the subject of meteorological factors in relation to consumption, there is no question that temperature and prevailing winds influence, to a

very great extent, the prevalence of pneumonia, bronchitis and congestion of lungs. March furnishes the largest number of victims from pneumonia, averaging 72.7; next comes January with 71.2, February 70.2, and April with 54.8; then follows December, November, October and June, in the order named, the rate for August falling as low as 10.6. A similar variation is observed in bronchitis and congestion of the lungs.

The mean temperature for March is 41.3; mean humidity, 68.3, and the prevalent winds are North N. 42 W. In the etiology of croupous pneumonia, we are evidently dealing with several factors, viz.: the presence of the micrococcus, individual predisposition and an exciting cause. Of these the latter is perhaps the most important, for Sternberg, who first discovered the organism, and other investigators, have shown that this "micrococcus may be present in the buccal cavity of a considerable proportion of healthy persons, both in this country and in Europe, and finds in the normal salivary secretions the necessary pabulum for its multiplication." Hence, we may conclude that the invasion of the microbe alone is not sufficient to produce the disease, because this can take place often enough. If, therefore, an attack of pneumonia result, the host must have furnished a suitable soil for the rapid multiplication of the germs, and the functional and structural changes which are brought about by its agency. We all know that cold, and especially damp, winds are often the cause of "catching cold," because they abstract bodily heat in proportion to their velocity, and if this takes place to an unusual degree or with great abruptness, the capillaries of the skin contract and the blood is driven into the internal organs, and congestion results usually in the most susceptible part, "the locus minoris resistentiae." Sudden changes are especially injurious, because the abruptness offends our peripheral nerves, and causes an irritation which is transmitted by reflex action to other parts of the body. If the peripheral irritation is not too intense, and we possess the requisite power of resistance, a proper reaction is established; if not, congestion of internal organs will result. The reason why draughts are more liable to cause mischief is because usually only a portion of the body is exposed to the sudden change, and the skin and heat-regulating centers find it extremely difficult to correct this irregular distribution of heat and cold. Apart from these congestions we have as an immediate effect of catching cold

the suppression of the cutaneous functions and consequent retention of effete matter in the blood. We can readily appreciate how all this may be aggravated by the habitual presence of alcohol in the blood current, which diminishes oxidation of the waste products, and also by over-crowding, because the effect of defective air supply is not only to reduce the quantity of carbonic acid by expiration, but also to diminish the normal oxidation of effete matter. In any event, we are clearly confronted with conditions favoring the accumulation of effete matter, and of rendering the blood current sufficiently impure to lose its bactericidal properties and to become the pabulum for the rapid multiplication of the pneumococcus.

All of which indicates that while disinfection of the sputa in croupous pneumonia should not be neglected, our chief aim in the prevention of the disease must be the correction of predisposing and exciting causes, and this we can do by clothing adapted to climate and seasons, proper housing conditions as regards heating and ventilation, proper food, and temperate habits.

We may also lessen the harmful effects of abrupt changes in temperature by systematic hardening of the skin, remembering always that a normal function of the skin depends largely upon cleanliness and a proper tone of the cutaneous vessels and nerves secured by bathing.

Unfortunately no provision for public baths for winter use exists in this city, and should be supplied in the interests of general sanitation.

While pneumonia, according to the United States census, has increased almost everywhere during the past ten years, the death rate in this city has actually decreased from 1.77 per 1,000 in 1893 to 1.65 in 1902, and only 7 of the 26 largest cities enjoy a lower pneumonia death rate; nevertheless it is a lamentable fact that this disease ranks next to tuberculosis as a cause of mortality.

In conclusion, it may be well to emphasize the importance of vigilance on the part of the Executive Committee to prevent adverse legislation and to secure such additional laws as may be necessary to regulate the commitment of insane persons, to regulate the sale of poisons, to prevent the spread of minor contagious diseases, and to authorize the condemnation of dwellings unfit for human habitation. Efforts should also be made to secure appro-

priations for the establishment of public baths, public-comfort stations and playgrounds, especially in the congested portions of the city, all of which are essential and necessary from a sociological point of view.

I thank the Society for the great honor conferred upon me by my election to the Presidency, and only regret that my many shortcomings have prevented a more successful year in the life history of our ancient and honorable body.

### THE ABSENCE OF PROLONGED NAUSEA AFTER ANESTHESIA BY THE NITROUS-OXIDE AND ETHER METHOD.\*

By EDWIN M. HASBROUCK, M. D.,

Washington, D. C.

Dr. Joseph Price has defined an anesthetic as "an agent with which the patient is carried to the edge of death and held there while the surgeon does his work." This comes pretty close to being the truth.

Now, the danger of an operation is it itself sufficiently terrorizing without having added to it the fear of the anesthetic, and fear of the anesthetic is in nine cases out of ten worse than fear of the operation. If by any means the process can be robbed of its dangers and terrors, certainly that means should be employed in all our operations, and the method I shall speak about this evening is certainly a safe and efficient agent for cutting short or abolishing these agonies.

It is not my purpose to thresh over again the much-worn subject of Ether versus Chloroform; most of us have our minds pretty well made up on the matter, and, as my topic is wholly concerned with nitrous oxide and ether, I will merely state that chloroform is credited with one death in every 2,500 administrations; ether, one in every 15,000; and nitrous oxide, one in every 600,000. Nitrous oxide is therefore indicated as being about 100 times as safe as ether. The combination of both as an anesthetic has been employed in England for many years, but not until recently has it been used in this country.

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\* Read before the Medical Society of the District of Columbia, December 2, 1903.



Dr. Galloway, of Chicago, in reporting 250 cases, says: "My experience with it has been so favorable that I think writers on the subject have underestimated rather than overestimated its value. If found, the ideal anesthetic will be devoid of danger to the patient, will produce profound anesthesia without producing any unpleasant sensations in the administration, and will cause no bad after effects. Nitrous oxide is not an ideal anesthetic, and I do not believe such an anesthetic will ever be discovered, but it approaches these conditions more nearly than any other drug known at present. It is my opinion that ether is safer when preceded by gas, for then the complications which arise at the beginning of ether anesthesia—the excitement, coughing, struggling, etc.—are practically absent. The question of safety is, of course, the paramount one, but there are other things to be said in its favor. Nearly all patients have heard of 'gas' and regard its inhalation as having little, if any danger, and are therefore less apprehensive when taking it. This attitude of mind is in itself a powerful factor for safety, and its action is so quick that there is little time for the patient to become frightened after the administration is begun, and there is no delay in getting ready for the operation. Again, less ether is used, and therefore recovery takes place quicker and the after effects are comparatively less."

The time required to produce narcosis in these 250 cases averaged  $2\frac{1}{2}$  minutes, but they include those in which gas was given as well as gas plus ether, and there is no way of separating them. Continuing, he says:

"When an operator has experienced or even witnessed the distressing effects which are often produced when a struggling patient is being anesthetized with ether, particularly if the patient is being stifled, as so many physicians give it, and then has seen the quick and quiet way in which gas does its work, one would expect that he would never again allow ether to be used alone in his practice when it was possible to get the gas."

Mortimer, in reporting 50 cases, states that  $1\frac{1}{2}$  ounce of ether is sufficient for a 10-minute operation,  $2\frac{1}{2}$  ounces for 20 minutes, etc., less being used in later stages. Goldan reports 1,000 cases much along the same lines, while Fowler reports an operation with the Bennett inhaler, lasting  $5\frac{1}{2}$  hours, in which narcosis was produced in 5 minutes and only 16 ounces of ether were used.

Two years ago I read a paper before the Society on anesthesia

by the nitrous oxide-ether method, followed by a demonstration which was satisfactory, compared with the ordinary manner of giving ether as regards time, yet fell short of showing its real possibilities, as the subject was a confirmed drunkard, and but a few days over a prolonged debauch, the time taken to produce complete narcosis, if I remember correctly, being  $4\frac{1}{2}$  minutes.

At that time I was the only person in Washington familiar with this method of producing anesthesia, while to Dr. Fry belongs the credit of introducing the method in this city, it being his apparatus exhibited which had been in constant use at his sanitarium for the preceding six months.

I had kept no statistics of my work, and could give only general statements as to results, but felt warranted, from our limited experience with it, in pronouncing it the most satisfactory method yet devised for administering ether. I laid stress upon three points of superiority over any other method: 1, quickness in producing surgical anesthesia; 2, small amount of ether required for a given operation; 3, absence of nausea and vomiting.

Each of these three points is worthy of careful consideration, for each has its weight in every operation, and each is dependent upon the others.

Quickness in producing narcosis is a prime factor, providing it can be done with safety to the patient, as less ether is consumed; and as evidence of its apparent perfect safety I would state that in my experience extending over a period of two years and in over 200 operations I have never had an accident or anything approaching an accident, and some bad cases of cardiac disease have been encountered. All of us will admit I think that the less quantity of ether a patient inhales the better his chances for recovery from the operation. I, for one, believe that the anesthetic contributes in no small degree to the amount of shock, and the less shock the better; therefore the less anesthetic the less shock—*q. e. d.* Each of us is familiar with the long period of taking the anesthetic as ordinarily given—how it frequently takes from fifteen to twenty minutes, and even longer, to put the patient under, and how it is by no means uncommon to use a half pound of ether to accomplish the purpose; not always, of course, but always several ounces. Now, if a patient inhales the most of this quantity in simply going under, what must the anesthetic contribute toward the dangers when added to the quantity used

to carry him through the operation? Right here let me say that by this method a patient can be carried through an operation lasting an hour or less ether than it generally takes to put him under with the ordinary paper cone stuffed with cotton! Another advantage of the method, not to be despised, is that all that period of excitement, coughing and struggling preceding narcosis under the old system is dispensed with, and the patient slips from the conscious to the unconscious state so smoothly, so easily and so quickly as to sometimes surprise even those who are accustomed to using it. The lessened cost of ether is also an item, although to the careful surgeon it is a matter of comparatively small import, the safety of the patient being the prime consideration.

The absence of nausea and vomiting is exceedingly important, so much so that it enhances just that much the integrity of the stitches, and coincidently the maintenance of coaptation in all abdominal work, and is of vast benefit in a host of operations too numerous and too apparent to specify. By absence of nausea and vomiting I mean really what I say. Most patients, on coming out, will eject mucus that has been swallowed, or perhaps vomit once, but with the majority of cases it stops *right there*, and there is no further discomfort so far as the anesthetic is concerned. This applies to long as well as short operations. If there is to be any nausea and vomiting it is much better to have it of short duration than lasting for hours, and who of us has not, time and again witnessed the coming-out period in which the vomiting and nausea were prolonged for hours, even into the following day? Surely any safe method whereby these after effects can be done away with or even lessened is certainly to be commended, and a patient about to undergo a surgical operation is entitled to every safeguard that can possibly be thrown about him. It is really surprising how many patients there are in whom there will be absolutely no nausea or vomiting whatever, in fact one-third of the cases in my records come under this head. Then there are those in which its duration is so short as to require only passing mention; still fewer in number are those in which it lasts an hour or so, and, lastly, the ever-present exception to every good rule which goes to prove it, the very, very few in which there is no appreciable advantage over the old method.

In mentioning this last class of cases it is but fair to state that

the exception to each and every point will occasionally be met, sometimes in only one point, with a certain individual, sometimes more. Three times within a year I have been absolutely unable to produce anesthesia with either the gas, the ether, or by combining both. Again, we are accustomed to look upon gas as an anesthetic to which the patient succumbs quickly and quietly. Now, it has just been stated that by this method the period of struggling and excitement was obviated, and this is true in nearly all cases, but there will occasionally be met the individual to whom the gas is intensely exciting, and then there is as much noise and resistance as by the old method. I have not kept a record of this feature, but my recollection is 2 in my series of 100 cases.

There is one more advantage, and it is to the personal comfort and benefit of the surgeon. If the operation be in the region of the head, there is scarcely any odor of the anesthetic arising to be inhaled. One operator of this city, troubled with asthma, had given up operative work solely because the fumes of ether invariably brought on an attack. A trial of this method has thoroughly convinced him of the value of this feature of this particular apparatus.

The effect upon the heart and respiratory system is, so far as I have observed, not materially different from that produced by the old method. I have not kept records of this particular feature, having had no occasion to, but it has seemed to me many times that the pulse was less rapid throughout the whole course of an operation, and I have often remarked to others at the close that the pulse had not altered a beat from the normal from start to finish.

And now having extolled the virtues, it is in order to mention the disadvantages of this method. These are only two, so far as I have been able to discover. The first is the cyanosis frequently produced, the second is the comparatively cumbersome aspect of the apparatus. The cyanosis is not by any means present in all cases. True, its occurrence is the first danger signal that the system is becoming surcharged with poisonous gas, and, if persisted in, the patient would, in a very few moments, pass to another world; but long before alarm for his safety need be felt, unconsciousness is complete, the ether is turned on, the gas disconnected, and in a few seconds the normal color and respiration return. Cyanosis,



when it occurs, does so in varying degrees. In some persons only a faint bluish aspect will be noted, while in others it extends to a deep purple that, when witnessed for the first few times, invariably causes much concern for the patient's safety. Gas is in much the same category as morphine, strychnine, arsenic and other drugs; it can be pushed just so far and no farther. My idea as to why it has proved disastrous in the hands of various dentists is that by them it is always given with the patient in the upright position, and any anesthetic is, I think, more dangerous in this posture than in the recumbent, gas possibly more so. Certain it is that in *every* case in which I have given gas for the extraction of teeth deep cyanosis has invariably been present.

The cumbersome aspect of the apparatus is true, but really more theoretical than forbidding. The cylinder of gas is heavy, but one can arrange a small suit case in which everything is carried, the weight of which is about the same as that of a portable battery.

And now let me describe the administration of ether by this method, and the attending phenomena. The gas bag having been filled from the cylinder, and the mask placed over the face, a valve is thrown open permitting the gas to be inhaled; this valve closes immediately on exhaling the air from the lungs, going out by a different valve that closes automatically on inhalation. After some half dozen inspirations of gas, a screw is turned which puts both valves out of action, the patient breathing directly back and forth into the bag.

In from 40 to 60 seconds the patient loses consciousness, as evinced by deep or stertorous respirations, loss of reflexes, dilatation of the pupils and possibly beginning cyanosis. Now is the time to open the valve communicating with the ether chamber, wider and wider, until the full volume of ether fumes is turned on. By this time the gas can be disconnected, when if cyanosis be present it disappears almost before the air bag is attached, and after a few more respirations narcosis is complete. The whole procedure is accomplished almost in the time it takes to tell it, and consumes, as a rule, from  $2\frac{1}{2}$  to  $3\frac{1}{2}$  minutes—rarely more, frequently less, as in the case of children. The patient is now completely under, and probably not more than 2 drachms of ether have been inhaled in the procedure. The balance of the ether that he will get depends entirely upon the length of the

operation,  $3\frac{1}{2}$  ounces to the hour being the usual amount consumed. In fact, so close will it rise to this, in many instances, that an operation can be almost timed by the amount of ether used—not exactly, of course, but approximately. The consumption of ether runs very smoothly and evenly after one learns to use the apparatus.

And now let us see how my statistics will bear out my assertions.

They are based upon 100 anesthetics given during the past year. They are absolutely fair, for they include every anesthesia given, from those in which the poorest results were obtained to those that were the most successful.

The first list comprises records of the time taken to produce complete narcosis. Sometimes at the outset of an undertaking our plans are not fully formed, and crystallize as we proceed. When I began keeping records I had but two objects in mind, namely, the data as regards nausea and vomiting, and quantity of ether used. Later I took up the other point—time to procure narcosis—which accounts for the fact that I have records of this in but 50 cases. These 50 cases, however, corroborate most emphatically the previous statements on the subject.

The list is as follows:  $1\frac{1}{2}$  minute, 1;  $1\frac{3}{4}$  minute, 1; 2 minutes, 3;  $2\frac{1}{2}$  minutes, 9; 3 minutes, 25;  $3\frac{1}{2}$  minutes, 7; 4 minutes, 4; anesthetic no effect, 3. Of these 50 cases, 41 are included in those ranging from  $2\frac{1}{2}$  to  $3\frac{1}{2}$  minutes, 5 are less than  $2\frac{1}{2}$  minutes and four are over  $3\frac{1}{2}$ .

The list showing the quantity of ether used during an operation is better. To the anesthetist an operation begins from the moment of starting the anesthetic and lasts until its withdrawal; that view has been maintained in keeping these records.

Striking an average of the 16 operations of 50 minutes and one hour's duration,  $3\frac{1}{2}$  ounces per hour is the result, pretty close to the assertion that it averaged  $3\frac{1}{2}$  ounces to the hour.

Of the 100 cases, there were 37 in which there was absolutely no nausea or vomiting whatever; practically one-third. 26 vomited on coming out, but had no further after effects. 22 had nausea and vomiting for a short time afterward, anywhere up to an hour, possibly a little longer. 5 had nausea only for short periods, while 10 had prolonged nausea and vomiting, lasting in some cases to the following day. These last included those cases

in which the effects did not appear to be any different from the effects by the old method.

## AMOUNT OF ETHER USED.

10 minutes. 2-1 oz. or less.	$\frac{1}{4}$ hour. 1- $\frac{1}{2}$ oz. 4-1 oz. each.	20 minutes. 1-3 oz. 9-1 oz. each. 9-1 $\frac{1}{2}$ oz. each. 1-2 oz.	$\frac{1}{2}$ hour. 1-1 oz. 5-1 $\frac{1}{2}$ oz. each. 4-2 oz. each. 1-3 $\frac{1}{2}$ oz.
40 minutes. 3-2 $\frac{1}{2}$ oz. each. 1-3 oz. 1-3 $\frac{1}{2}$ oz.	$\frac{3}{4}$ hour. 1-1 $\frac{1}{4}$ oz. 1-1 $\frac{1}{2}$ oz. 1-2 oz. 3-3 oz. each. 3-3 $\frac{1}{2}$ oz. each.	50 minutes. 1-2 $\frac{1}{2}$ oz. 1-3 oz. 1-3 $\frac{1}{2}$ oz.	1 hour. 2-2 $\frac{1}{2}$ oz. each. 5-3 oz. each. 5-3 $\frac{1}{2}$ oz. each. 1-4 oz.
1 $\frac{1}{4}$ hour. 1-3 oz. 4-4 oz. each. 1-5 oz.	1 $\frac{1}{2}$ hour. 2-4 oz. each. 3-4 $\frac{1}{2}$ oz. each. 1-5 oz. 1-6 oz.	1 $\frac{3}{4}$ hour. 1-2 $\frac{1}{2}$ oz. 2-4 oz. each. 1-5 oz.	2 hours. 2-6 oz. each. 1-8 oz.
2 $\frac{1}{2}$ hours. 1-6 oz.	3 hours. 1-8 oz.		

Bare statistics are cold, hard facts, and in themselves give little or no latitude; hence it is no more than fair to these statistics to say that they include a wide variety of operations. One class in particular, the adenoid operation, of which there are 16, almost invariably causes vomiting from the blood swallowed, yet out of the 16, 5 had absolutely no nausea or vomiting, 9 vomited only on coming out, and in 2 it was prolonged. Considering that there were but 10 prolonged cases out of 100, 2 of which occurred in adenoid operations, it is a question whether or not the anesthetic was entirely responsible for the continuance of vomiting in these 2. Again, vomiting will always occur when an anesthetic is taken on a full stomach, and in my cases there are 6 in which the patient underwent no preparation whatever; hence my records of vomiting are increased just that much. Two cases of stomach disorders occurred in which vomiting had been more or less continuous up to the time of the operation, therefore it is no wonder they continued it afterward. Were it possible to eliminate these 10 from the list, my records would be still better. As I stated, however, my paper is based on 100 consecutive cases.

And now let me recount a few cases in detail :

Case 2. Enucleation of eye ; anesthesia in  $3\frac{1}{2}$  minutes ; operation lasted 21 minutes ; 1 oz. ether used ; absolutely no nausea or vomiting.

Case 8. Curettage ; anesthesia in 3 minutes ; operation lasted 20 minutes ; 1 oz. ether used ; expelled mucus from throat on coming out. Patient had a bad heart, and fears were felt of her being unable to stand the gas, but the heart did not appear to mind it in the least, and remained nearly normal throughout.

Case 14. Amputation of breast ; operation lasted exactly 3 hours ; 8 oz. ether used ; no nausea or vomiting whatever.

Case 31. Adenoids ; operation lasted 20 minutes ;  $\frac{1}{2}$  oz. ether used ; blood vomited immediately on coming out, and nausea and vomiting until following day.

Case 34. Hemorrhoids ; operation lasted  $\frac{3}{4}$  hour ; 5 oz. ether used ; no nausea or vomiting. This was one of the exceptional cases where the anesthetic was a failure. Neither gas nor ether seemed to have any effect, and it was impossible to keep him under even when for a moment apparently under. At no time was he even relaxed, and he kept coming out even in the brief periods of pouring ether into the apparatus. Probably 10 minutes were consumed in getting him even moderately under. As an anesthetic it was a total failure, and the only redeeming feature was the absence of unpleasant after effects.

Case 40. Suspension and appendix ; operation lasted one hour ; 3 oz. ether used ; vomited once ; nausea for short time afterward.

Case 56. Squint ; operation lasted  $11\frac{1}{2}$  minutes ; anesthesia in little less than 2 minutes ; less than 1 oz. ether used ; vomiting of food on coming out.

Case 79. Adenoids ; operation lasted 20 minutes ; anesthesia in 3 minutes ;  $1\frac{1}{2}$  oz. ether used ; vomited once on coming out.

Case 87. Cervix and perineum ; operation lasted  $1\frac{1}{4}$  hour ; anesthesia in  $2\frac{1}{2}$  minutes ; 4 oz. ether used ; slight nausea and vomiting.

Case 90. Frontal sinus operation lasting  $1\frac{1}{2}$  hours ; anesthesia in 3 minutes ; 4 oz. ether used ; vomited blood on coming out, —none afterward.

Case 95. Tubercular glands of neck ; operation lasted 65 minutes ; anesthesia  $2\frac{1}{2}$  minutes ;  $3\frac{1}{2}$  oz. ether used ; nausea and vomiting for 4 or 5 hours.



The detailing of cases makes dry reading ; it is worse to listen to, and enough have been recited to show the average run.

To summarize.—Six points of prime advantage have, I think, been pretty conclusively shown by my series of 100 cases.

1. Quickness in producing anesthesia with perfect safety to the patient, the average time being from  $2\frac{1}{2}$  to  $3\frac{1}{2}$  minutes.

2. The small quantity of ether used for a given operation, the average per hour being  $3\frac{1}{2}$  oz.

3. The infrequency of prolonged nausea and vomiting, and the total absence of it in one-third of the cases.

4. The absence of excitement, coughing and struggling during the going-under period.

5. The confining of the ether fumes to the party for whom they are intended.

6. The material lessened expense in the cost of ether. Two other facts seem also to be pretty clearly established :

1. That a bad heart is not endangered by the administration of gas.

2. That the administration of gas is less dangerous in the supine than in the erect position.

No one in this city, so far as I am aware, has ever before taken up anesthesia and made a careful study of it. Knowing that in other cities the nitrous-oxide-ether method was considered preferable to any other, it has been my object to investigate it thoroughly and to present to the Society such evidences of its superiority as to eventually banish entirely the old method of a cotton-stuffed paper cone and similar contrivances.

We, as physicians, are constantly looking for the best and safest remedies for our patients ; and, as anesthesia has developed new and improved methods, just as have other subjects in the last few years, why should we cling to the old ?

Considering the advantages of the new method, it would seem as though a physician were hardly justified in consenting to the employment of ether alone, and while it is true that the patient may be wholly uninformed upon the subject, it is quite likely that if he knew, he would choose the method holding the least amount of danger and discomfort to himself.

And now, having placed before you the results of my work, with the deductions and the reasons therefor, I leave the verdict in your hands.

**Dr. C. S. White** said that the method had been successfully used at the Columbia Hospital three years before. Safety was the prime criterion in the choice of an anesthetic. Willy Meyer gave the mortality from ether as 1 in 10,000; that from chloroform, 1 in 2,000. The method under consideration was 75 times as safe as ether, and 225 times as safe as chloroform; some had made even greater claims for it. The method saved much time; Dr. White's average time was 5 minutes, and his record would have been even better but for one case. This meant much to the busy operator. In 68 per cent. of his cases (without nitrous oxide) there was vomiting; and in 13 per cent. nausea. At Emergency Hospital, where they washed out the stomach afterward, there was even less nausea and vomiting. Some surgeons gave chloroform before administering ether, but he believed this method was attended with danger.

Experience had shown that this method had come to stay; it was used in nearly all our large cities. Howard Kelley used it to the exclusion of all other methods. In Dr. White's own experience the cyanosis had not proved serious. He had seen no bad effects from the method. Physicians and patients alike took to it. By this method the expense of an anesthetic was much reduced; about 10 cents per hour were saved. In this country, as in Europe, every hospital should have an expert, salaried anesthetist. As a matter of fact, only one or two hospitals in the entire United States had such physicians on the staff.

**Dr. Abbe** said that he had had some experience with the nitrous-oxide-ether method at Mt. Sinai Hospital, New York. When he went there they were using chloroform almost entirely, ether rarely and nitrous oxide when the other two were contraindicated. In one case the patient was kept under the last anesthetic for one hour—the longest time he had observed with this anesthetic. They then changed over to the method described by Dr. Hasbrouck, and obtained some of the good results which he had mentioned. Dr. Abbe did not care, however, to speak positively with regard to the after vomiting; he was sure, though, that it occurred in some cases. The patients came out of the anesthetic so rapidly that caution was found to be necessary, and the rule was made not to remove the mask until the final steps of the operation had been completed. Cyanosis was present in some cases, but by no means in all. There was some difficulty in getting some patients under; whether equal trouble would have been experienced had ether or chloroform been used, he could not say. In these cases ether or chloroform was subsequently resorted to successfully. The anesthetic was given by the house staff,—not by an expert.

**Dr. R. S. Lamb** suggested a method even better than that under consideration, either for brief operations, or as a preliminary to the use of another anesthetic. It required only 45 to 60

seconds to get the patient under. The patients recovered consciousness in about 2 minutes, and many had walked home 5 minutes after its administration. Chloroform or ether could be given with it. Two or three oz. in a vial were all that was necessary, with a patent cut-off valve and inhaler, although a cone could be used if desired. It had been used 100,000 times without a death, the patient being in either the upright or prone position. He had given it in several cases with entire satisfaction. There was no subsequent nausea or vomiting. He referred to *somnoform*, a French preparation, used for the last two or three years in Paris and other cities of the old world. He suggested that it be given a trial in this city. It appeared to be absolutely without danger. It was composed of chloride of ethyl, 60 per cent., bromide of ethyl, 5 per cent., and chloride of methyl, 35 per cent., and made a very volatile mixture. His record for producing anesthesia with it was 40 seconds.

**Dr. G. T. Vaughan** said that he had not heard all the essay, but what he did hear was very interesting. Dr. Hasbrouck deserved commendation for the paper and his studies in this line. There was no question as to the need of a safe anesthetic, and it would be a matter of delight to all if one could be found. He first saw this method employed in London about five years ago. It was used many times by the same man, who claimed the very best of results for it; but others said that he had had two or three deaths from its administration, one being due to the great arterial tension in the stage of excitement caused by the anesthetic. There was no doubt as to the saving of time, but this was not to be weighed in the scales with the patient's welfare, which was by far the most important consideration. Statements as to the quantity of ether "taken" were very misleading; much of the anesthetic was wasted. The saving in money was of little account. The method appeared to be safe, as far as Dr. Hasbrouck had gone; but the question was, Could he draw conclusions of any value from 100 cases. Chloroform was fatal in only 1 in 2,000 or more cases, and when Dr. Hasbrouck could report the results of the administration of anesthetics by this method in 2,000 or more cases the results would assume proportions of value. Dr. Vaughan himself had given ether for 21 years before seeing a death from its use. Neither was he convinced as to the advantages so far as vomiting was concerned; he did not believe that there was vomiting in more than 20 per cent. of his ether and chloroform cases.

**Dr. J. Taber Johnson** commended the paper, and results obtained by Dr. Hasbrouck. We could not judge much, however, from the use of a method in only 100 cases. Often the exact cause of death could not be determined—whether it was due to the disease or the anesthetic, or a combination of causes. Unquestionably a safe, quick and pleasant anesthetic was wanted. Perhaps



Dr. Hasbrouck overdrew the dangers which result from vomiting following anesthesia. Dr. Johnson had gotten over worrying about these effects following abdominal operations; formerly he, along with others, dreaded them—feared that the stitches would give way, and the wound burst open; but experience had shown that this result rarely occurred.

Halstead said that in his breast operations two, three, or even four hours were sometimes necessary for the completion of the operation. He claimed that no evil effects had resulted after the use of ether. If this were true, one of Dr. Hasbrouck's arguments lost much of its weight. Dr. Johnson agreed that in some cases prolonged anesthesia did harm, but not to the extent generally believed. He always used a Clover inhaler, which he purchased in London years ago. To it apply nearly all of the advantages mentioned by Dr. Hasbrouck. Dr. Wallace Johnson had given ether with it for him 1,000 times at least, and in several hundred instances he had produced full anesthesia in 3 minutes. He welcomed, however, any advance in this or any other direction. Dr. Lamb's 40-second method beat them all: "100,000 cases and no deaths," had no rival.

**Dr. S. S. Adams** said that he was responsible for the presentation of Dr. Hasbrouck's paper, as he had requested the doctor to tabulate and report his cases. The subject was a practical one. Dr. Hasbrouck had had more experience with this method of anesthesia than any one else in this city, which enabled him to present his subject after much study. Moreover, his presentation was absolutely fair and he had selected the most unsuccessful cases for especial remark. Dr. Adams had been his Jonah in one instance recorded as a failure. This should not count against the method, as the subject was an athlete, and unsuccessful attempts had been made to etherize him on former occasions. The nitrous oxide was given for the production of speedy and pleasant anesthesia, but it was soon eliminated, and could therefore have no effect shortly after the ether was turned on. Consequently, after the first five minutes, the method was essentially the same as that of the Clover inhaler. If, then, the effect of the nitrous oxide was speedily lost, would Dr. Hasbrouck explain its action in preventing nausea?

Secondly, as to the quantity of ether "taken." This was often misleading. The anesthetic was poured on *ad libitum*, and much of it was wasted, the operators getting a large proportion of it. When properly given, much less was consumed.

In the third place, as to nausea and vomiting. It was true that Dr. Hasbrouck's method gave good results, but it was also a fact that there was often no vomiting after anesthesia by other methods. Was the vomiting caused by a local or a general effect? If the latter, why wash out the stomach except to empty it of the mucus swallowed during the operation? He believed that the



effect was systemic in origin, and hence some patients were affected by anesthesia more than others; just as with morphine, some vomited after taking it and others did not. He had recently seen anesthesia produced by the combined use of oxygen and nitrous oxide; the patient took the anesthetic well, there being no cyanosis or convulsive movements; these seemed to be avoided by the admixture of oxygen. One decided advantage of Dr. Hasbrouck's method was that it was pleasant for the patient. But there appeared to be little advantage so far as the avoidance of nausea was concerned. In conclusion, Dr. Adams asked Dr. Hasbrouck to explain the rationale of the action of the anesthetic.

**Dr. J. Ford Thompson** said that he would say a few words on this subject, inasmuch as operators had been invited to participate in the discussion, and he had had a long experience with anesthetics. Ether was early given in preference to chloroform. Indeed, in his last year at the Medical School, his professor was so prejudiced against anesthetics that he often had patients held by students during operation; it was thought that the anesthetic predisposed to sepsis, etc. Soon after, the civil war broke out, and some surgeons used ether, and some chloroform, just as they do now.

He had seen but two deaths from an anesthetic, and they did not occur in this country. Both were from chloroform. His experience had led him to have absolutely no fear as to an anesthetic; he had seen anesthesia produced under all possible conditions, without a single death. Sometimes there was a little cyanosis, but inversion of the patient had proved all that was necessary to resuscitate. He was not particularly enthusiastic about this new method, because he had had no difficulty with the old. The saving in time was its greatest advantage.

Some anesthetists used much less of an anesthetic than others, and got just as good results. He was never without chloroform. Twice he had seen a patient nearly killed by the excitement caused by ether, but he had met with no such experience with chloroform. There was nothing disagreeable about the effects of chloroform. For an operation upon his own arm he had given himself chloroform, and the sensation as he went under was one of the most delightful he ever experienced. There were no after effects. He once took nitrous oxide gas, and thought that he was dying just before he became unconscious. There were, however, no unpleasant after effects. The effects of ether were alike unpleasant for patient and physician. When a man had given chloroform in thousands of cases, with satisfactory results, he had little inclination to change over to any other method, unless it possessed superior advantages. The only advantage possessed by this new method was in the saving of time, and this was certainly an important point. But he had had such good results

with the older methods that he saw no reason for adopting it. In conclusion, he congratulated the essayist on his able presentation of the subject.

**Dr. E. L. Morgan** said that chloroform should always be tested before being used. Many deaths ascribed to the anesthesia were due to an inferior article. Dr. Chamberlin reported a case in which the chloroform nearly caused death, and afterward it was found to be of inferior quality. Unless it had been examined, the effects would have been ascribed to the anesthesia itself. Read, an English authority, stated that chloroform should always be tested before it was administered.

**Dr. Carr** said that he had seen several instances in which the anesthetic was supposed to have been the cause of death, when, as a matter of fact, death was really due to other causes. He had never seen a death undoubtedly produced by an anesthetic, and, like Dr. Thompson, he found no great fault with the old methods, so far as bad effects were concerned. He had seen at least one operation a day for the last ten years. Nausea and vomiting were not usually severe. In laparotomy this effect was due as much to the handling of the viscera as to the anesthetic. He had had some experience with this new method, and he saw no particular advantage in it; he had not discerned any less nausea and vomiting, and he could see no reason for believing that it was any safer than the older methods. He endorsed washing out the stomach, as practiced at the Emergency and Columbian University Hospitals; whatever its rationale, it lessened emesis.

**Dr. Acker** spoke in favor of the method. He cited two cases in which it was given for him to his entire satisfaction. It took but a few minutes to get the patients under, and they were hard cases too. He preferred chloroform to ether, first giving whiskey. He had had one or two bad effects. We were liable to forget these accidents. Dr. Thompson forgot to mention one or two cases in which he had to perform tracheotomy for narcosis in order to save his patients.

**Dr. Hasbrouck**, in closing the discussion, said that he had seen one instance in which death was nearly caused by chloroform; adrenalin chloride saved the patient's life. He did not understand how Dr. Carr could fail to see a difference between the after-effects of the old and the new methods; possibly his cases were peculiar. All had praised this particular feature of the nitrous oxide-ether method. The method was now used all over the world. That suggested by Dr. Lamb had superseded it in some places; all, however, had not obtained equally good results with Dr. Lamb's method, and some said that it was not superior as a time saver. But there was no doubt that the apparatus was less bulky, and there was no cyanosis.

It should be remembered that he (Dr. Hasbrouck) had cited over

1,500 cases, not merely his own 100. He was well aware that his own cases showed but little. In all the cases there were no accidents. 30 deaths were on record as having been caused by the administration of nitrous oxide. This was much less than the mortality from other anesthetics.

In answer to Dr. Adams' question as to the reason for the comparative absence of nausea and vomiting, Dr. Hasbrouck stated that this was due to the diminished quantity of ether consumed by the new method. He believed the effect to be a general one. The combined administration of nitrogen monoxide and oxygen was the latest method. He had had no experience with it. It was said to be the nearest thing to an ideal anesthetic. An operation lasting one and one-half hours had been done under it satisfactorily. In answer to a question by Dr. Vaughan, he said that in the cases where the method failed to produce anesthesia he had subsequently tried ether, and also failed with it to produce anesthesia.

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## THE TREATMENT OF CHRONIC BRONCHITIS.\*

By THOS. A. CLAYTOR, M. D.,

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No entirely satisfactory classification of this disease can be made which would not be too voluminous for an article such as the present.

It is necessary for the therapist, however, to recognize etiologically but two grand divisions:

1. Chronic bronchitis which has its origin independently of any demonstrable disease or functional disorder of any other organ or organs.

2. Chronic bronchitis resulting from causes outside of the bronchi themselves, such as heart disease, aortic aneurism, enlarged bronchial glands, renal disease, gout, etc.

Symptomatically, we have to deal with three quite distinct groups, namely: dry catarrh, bronchorrhoea and fetid or putrid bronchitis. There are, however, many intermediate cases which it would be difficult to accurately classify.

(a) DRY CATARRH.—The *catarrhe sec* of Laennec, which is characterized by paroxysms of coughing of great intensity, with but little or no expectoration, and often associated with emphysema.

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\* Read before the Medical Society of the District of Columbia, December 9, 1903.

(b) BRONCHORRHOEA.—In which the secretion from the bronchial tubes is excessive; serous, mucous or muco-purulent in character. More commonly the latter.

(c) FETID OR PUTRID BRONCHITIS.—Characterized by sputum which is abundant and very offensive and containing at times the so-called "Dittrich's plugs" of tenacious malodorous secretion.

This last variety is comparatively rare and must not be confused with those cases of evil smelling expectoration due to bronchiectasis, gangrene of the lung, abscess, decomposition of the retained contents of a tubercular cavity or an empyema which has ruptured into the lung.

Upon taking charge of a case of bronchitis, it is first necessary to determine to which etiological division it belongs. If to the second, *i. e.*, if due to some cause outside the bronchi, such as a mitral lesion, renal disease or gout, the primary condition must receive attention. This branch of the treatment will not be considered here. There are many cases too, in which, while there may be no demonstrable cardiac lesion, there is an insufficient pulmonary circulation, perhaps due to a dilated right heart, or to some other cause. Here we find digitalis and strychnia of great value, and no other plan of treatment will be successful until the circulation is improved.

There are a few general rules which apply to nearly all cases of chronic bronchitis. There is no condition in which the ounce of prevention is better worth the pound of cure. We are all familiar with the regularity which is shown by the winter cough in its annual return to those who are subject to it. The old and feeble are particularly liable to this recurring cough. In these cases it is of the greatest importance to so regulate the manner of living as to reduce to a minimum the chances of taking cold. When it is possible, there is no better way to begin the day than by a tepid (not hot) bath, followed by a very rapid cold sponge and friction with a rough towel. A few may be vigorous enough to omit the tepid bath, but it requires a much stronger circulation than is commonly found in these cases to insure a complete reaction. It is best for the patient to stand in warm water while the cold is rapidly dashed over the body and limbs. Above all things, neither the tepid full bath nor the cold sponge should be prolonged. The whole process should not extend over more than about three minutes.



If these suggestions are carefully followed there will be, as a rule, no delay in reaction, and there will be a marked reduction in the tendency to take cold.

The underclothing should be of wool, warm, but not so heavy as to interfere with the movements of respiration, for dyspnoea may be one of the most annoying symptoms of chronic bronchitis. In the avoidance of taking cold, Fothergill ("Chronic Bronchitis and its Treatment," 2 ed., London, 1889,) cautions against drinking alcoholic stimulants before going out of doors in cold weather, and advises rather hot beef tea, or some such substitute. On returning, however, the alcoholic stimulant will be found of advantage. Campbell (*Brit. Med. J.*, 1901, II), on the other hand, prohibits the use of alcohol or gives it only sparingly to tide over dangerous phases of the disease, on the ground that toxic factors (gout, Bright's disease and alcohol) must be recognized as causes of chronic bronchitis. For the same reason he advises that meat be only eaten sparingly by bronchitics, as it increases the toxicity of the blood. The question of idiosyncrasy here comes into play, some cases tolerating meat much better than others. It is hardly necessary to say that the temperature and ventilation of the living rooms should be carefully regulated, as nothing is more important. Patients should be urged to breathe through their noses, and if any mechanical obstruction in the nasal passages exists, its removal may be followed by prompt recovery from bronchitis.

Only too frequently do we see patients, who are comparatively comfortable through the day, begin to cough as soon as they get into bed. Fothergill suggests, to prevent this, that the bed be carefully warmed or that the patient sleep between blankets, and that a hot drink be taken before retiring.

As to the amount of fresh air which should be admitted into the bedroom, we find ourselves in rather a predicament—*i. e.*, theoretically, we believe in an abundance of fresh air, but practically we find that many, particularly old persons, get along much better in a room where there is very little communication with the chilly outside air. I would caution, then, against too free opening of the windows in the bedroom.

As a preventive or curative agent in chronic bronchitis nothing else is so satisfactory as change of climate. If those who are subject to winter cough are able to go to a mild climate such as that of Florida, southern California, southern Italy or France, to

spend the cold and changeable months, the chances are that they will miss the annual attack entirely. Even when the disease is in full blast it is often remarkable how quickly it will subside upon a change of climate. A few days spent at a seashore resort is frequently sufficient to cut short an attack which has lasted for weeks and resisted all home treatment. For those who are unable to travel, however, something must be done at home.

It is necessary in these cases, when the attack has set in, to place our chief dependence upon drugs. There are many which have proven of benefit, but here I shall confine my remarks to a few which are of the greatest value. Having assigned a case, after physical examination, to its proper etiological class and from the history to its symptomatic class, we are in a position to carry out the treatment intelligently.

DRY CATARRH.—Dry catarrh is one of the most obstinate forms of chronic bronchitis to treat, associated, as it so frequently is, with an incurable condition—emphysema. Nevertheless, much can be done for these sufferers.

In the first place, the cough, which is so often apparently purposeless, may be controlled to some extent by opium; hence some form of this drug is usefully combined with other remedies. I. N. Danforth speaks highly of Dover's powder, especially with capsicum, as in the following: *Pulveris ipecacuanhae et opii* (gr. iij) (0.20); *pulveris capsici* (gr. ss.) (0.03), in capsule every three or four hours.

For the relief of dyspnoea, difficult cough and little expectoration of a thick, tenacious kind, Davies (*The Med. Magazine*, London, 1902, xi) recommends a mixture of potassium iodide, potassium bicarbonate and ammonium chloride as very useful. For the morning cough, when patients complain of much difficulty in raising the phlegm which has accumulated during the night, Kingston Fowler's alkaline draught of bicarbonate of sodium (gr. xv) (1.00), chloride of sodium (gr. v) (0.30), spirit of chloroform (m. x) (0.60) in anise water, taken in warm water on waking, has been found satisfactory by many clinicians. It is said to be an artificial imitation of Ems water.

In French literature may be found a number of articles on the treatment of dry catarrh by mineral waters, but personally I have had no experience along this line.

Tar is another remedy which has been found useful either in

pill form (gr. ij) (0.12) every two or three hours, or as Syrupus Picis Liquidæ two fluidrachms (8 cc.) in water every three or four hours. Murrell ("Chronic Bronchitis and its Treatment," 1889) speaks enthusiastically thus: "A mixture of two parts of syrup of tar and one of syrup of Virginia prune is an ideal mixture. In its presence, maraschino, curacoa, and even green chartreuse naturally take a back seat. I cannot say more of a cough mixture except that its effects are really marvellous, and that the chronic bronchitic who has once tested it yearns for it." Apomorphine in doses of gr.  $\frac{1}{20}$  (0.003) or less, potassium iodide and potassium citrate all have a tendency to increase the bronchial secretion, and may be found useful.

**BRONCHORRHOEA.**—The three most important drugs in the treatment of this form of chronic bronchitis are creosote, oil of eucalyptus and terebene. Creosote may be administered either in pill form or in capsule, preferably after meals because of its irritating effect upon the stomach when too concentrated. From 2 to 5 drops three or four times a day are usually sufficient. It is probably excreted to some extent by the lungs, and exercises its influence in this way. It is said to have no appreciable effect in lessening the number of bacteria in the sputum.

Oil of eucalyptus is a special favorite of mine. Its active principle, eucalyptol, or the oil itself, may be given in doses of min. v. (0.30) with an equal amount of oil of sweet almonds in capsule every three or four hours, followed by a full tumbler of water to prevent the rather disagreeable burning sensation otherwise experienced. Terebene was first brought to the attention of the profession in the treatment of winter cough by Murrell (*Brit. Med. J.*, 1885), since which time it has been used with great success by many clinicians. The dose is min. x (0.60) on a lump of sugar or in capsule every four hours. It has a marked influence in lessening the frequency of the cough, the amount of the sputum and the severity of the dyspnoea.

Thus far we have dealt with the administration of drugs by the stomach, but the lungs may be reached directly by the use of a spray. Ringer and Murrell in 1874 (*Lancet*, September 5, 1874), called attention to the use of the wine of ipecac as a spray in cases of winter cough and bronchitic asthma, claiming remarkably good results; the shortness of breath being the first symptom relieved, the cough lessened, the expectoration diminished and in the course

of a few treatments the patients practically cured. The wine may be used in full strength or diluted with one, two or three parts of water. It must be used with great caution where there is a tendency to asthma, as it sometimes brings on a seizure. In using the spray the patient is told to hold the nose with the thumb and finger and to inhale with each compression of the bulb of the syringe. With a little practice the procedure is soon mastered and the medicated material reaches deep into the bronchial tubes. At first there may be an involuntary arching of the tongue which prevents the solution from reaching the larynx, but this can be overcome. The mixture must not be swallowed, as it may produce vomiting. In cases in which asthma is a prominent symptom a 2 per cent. watery solution of potassium iodide may be used as a spray and is at times said to produce the sensation of taking a draught of fresh air into the lungs. Other drugs, such as lobelia (with twice its bulk of water), tartar emetic (gr. vi) and terebene, may also be used as sprays.

**FETID BRONCHITIS.**—In fetid bronchitis, eucalyptus, carbolic acid and creosote will be found most useful. Of these, creosote is probably the best. It may be given internally in doses of one to four drops three or four times a day, or, which is better, by inhalation. The method introduced by Arnold Chaplin, somewhat modified, is as follows: The patient is placed in a small room with all possible exit of air closed with cotton, pads over the eyes and ears, the nostrils stuffed with cotton wool. A teaspoonful of creosote is then poured upon water in a suitable vessel and vaporized over a spirit lamp. The fumes are at first very irritating and provoke violent coughing, which causes the offensive material to be entirely expelled from the bronchi. The treatment should at first not last more than ten to fifteen minutes, and be given every other day. As the patient becomes accustomed to the procedure, the time may be lengthened to an hour daily. A simpler method, though not so thorough, is to allow the patient to inhale the fumes of creosote upon hot water through an inverted funnel or some such device.

Salol, Peruvian balsam and other drugs have been found useful.

Danforth highly recommends, for those who are able to take exercise, a smart walk of a mile or two a day, its effect being to stimulate the circulation, increase oxidation and replace the offensive by a more healthy secretion.



## "COLDS IN THE HEAD:" THEIR PREVENTION AND CURE.\*

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Before proceeding to the subject matter proper of this paper, we would like to say a word in defense of the selection of so commonplace a subject.

There may be some members of this Society imbued with the idea that the only kind of topic worth considering is one relating either to some very rare disease or to some very recent discovery. But why give up much time to a disease so rare that the average practitioner does not meet a single case in the practice of a lifetime, or why discuss, to the exclusion of familiar and practical subjects, some discovery so recent that nothing that is known of it is certain, and most that is given out emanates from quick-triggered dabblers in the field of science, anxious to get their names associated with a subject that has excited popular interest?

To regard whatever is common as of only inferior importance is an error to which all mankind is admittedly more or less liable. In fact, so widespread and so deep-rooted is this general tendency that it has taken a strong hold even upon our language, and we find that the adjective "common" is used synonymously with what is worthless.

It is very likely that this secondary construction is frequently put upon the expression "a common cold," and it is to such a misinterpretation of its true significance that we desire to enter a protest.

The so-called "cold in the head" is certainly one of the most universal of ills to which flesh is heir. The doctor, as well as the layman, has had his personal experience. It affects alike the rich and the poor, the old and the young, the white and the black. It occurs in all countries, in all climates, and at all seasons.

But this universality of its distribution, this commonness of a common cold, instead of giving rise to a sense of security and suggesting a policy of inaction, ought rather to have a reverse effect and put us on our constant guard against an enemy that surrounds us on every side, and attacks from which we are exposed at any time and in all places.

\* Read before the Medical Society of the District of Columbia, December 9, 1903.

A "cold in the head" is in fact the entrance wedge of disease ; it is a small break in the embankment which protects good health ; it is a rust formed upon a constitution of iron, which, besides the harm it does of itself, favors the formation of additional deposits.

It is in vain to imagine that this violent inflammation of the membrane lining the nasal cavity and of the spongy tissues lying thereunder, with its consequent intense engorgement of the blood-vessels, and over-activity of the different kinds of glands, with its copious exudation of serum into the submucous tissue, with its migration of leucocytes, with its over production of mucus, with its desquamation of epithelium and, in the later stages, with its formation of pus, containing numerous pathogenic bacteria—it is in vain, I would say, to imagine that such a process is going to pass off without leaving some traces of its visit.

Undoubtedly it has injured these membranes, blood vessels and glands in such degree as to harm them, and in such a manner as to make them the more liable to future attacks. Frequent and especially neglected colds set up a catarrhal inflammation. The latter predisposes to catching colds, and thus is completed a beautiful example of the *circulus vitiosus*.

Another evil feature is the dangerous tendency to extend. It is probable that every acute rhinitis is complicated with more or less involvement of the neighboring sinuses, and if it so happen that certain conditions are present, an empyema may be the result. The inflammation often travels up the Eustachian tubes, and, in children especially, gives rise to a suppurative middle-ear inflammation ; or it may travel downward, setting up a pharyngitis, laryngitis, bronchitis, or, in young children, a broncho-pneumonia.

Add to this that in the suckling infants acute rhinitis has serious consequences, because of its interfering with the taking of nourishment, and we have some idea of the need of preventing, if possible, or, that failing, exercising our best efforts to cure this affection.

It is unnecessary to point out the error implied in the common designation "cold" as applied to these acute inflammations of the mucous membrane—a mistake founded on a misapprehension of etiology, which is not so egregious, at any rate, as the French term "rhume de cerveau," still retained in accordance with an ancient pathology which taught that the discharges emanated directly from the brain.

An acute rhinitis, endorhinitis or coryza may arise from a number of causes. It can be produced by the inhalation of irritating fumes or vapors; it occurs quite often as a complication of the infectious fevers (measles, typhoid, scarlatina), or it can occur as the result of direct inoculation.

The great majority of cases have, as the exciting causes, exposure to certain barometrical or thermometrical states of the atmosphere, but it is seldom or never at all that a mere exposure to a very cold temperature is responsible. That is to say, colds do not arise, as many misapprehend, by reason of abstraction of heat from the body—by reduction of the body temperature. Colds are not so common, in fact, in the cold winter months as they are in the spring and fall, and it is said that arctic explorers have been singularly exempt from them.

They are most frequent when there prevails a moderate temperature, with winds and a high degree of humidity, and especially if there be sudden variations in the state of the weather.

It might be interesting and lend force to what we will have to say in regard to prevention and treatment to enter into a thorough discussion of the etiology of "colds." But to do so would draw this paper out to an unwieldy length; therefore, we will proceed at once to the subject in hand, mentioning the causes only so far as shall be necessary in learning how to avoid them. What we will have to say as to prevention of colds in the head will be equally applicable to "colds" in other parts of the body.

#### THE PREVENTION OF "COLDS."

In giving advice in regard to the catching of colds, it is important to steer a middle passage between two opposite classes of persons—those, on the one hand, who regard a cold in the head, "only a common cold," as they call it, as of no moment, and who disdain to take any precautions against catching one; on the other hand, those who are over-zealous and over-cautious to the degree of "coddling" themselves, thus lessening their natural powers of resistance.

It is a very fine question to determine how far one may go in the process of what is called "hardening" oneself, without inducing the very thing which it is desirable to avoid.

It might be laid down as a good general rule that steps taken in this direction should be gradual, and that one need only accus-

tom himself to such conditions as those which he would be likely to be exposed.

It is highly advisable that, from childhood, we should accustom ourselves to face the rain, the wind, the snow and the night air, because throughout life we must frequently encounter them; but to practice going bareheaded or without an overcoat appears to me to be useless, as not being called for in the ordinary exactions of life.

This line of argument will make it clear why we should avoid all extraordinary forms of dress, such as mufflers, boas, fur caps, flannel throat bands, chest protectors, chamois waists, sealskin sacques, and so forth. There will, undoubtedly, be times when the wearer will be without them, and they would be more needed than on the occasions he has worn them, and, being less resistant than the ordinary individual, on account of his previous habits, he will contract a cold.

With regard to how early in life the hardening practices ought to be begun, we must remember the new-born child is exceedingly tender; and that children, having a greater surface exposure, as compared to bulk, than adults, and having, too, a greater heat-elimination because of a more rapid circulation of blood through the skin, require a relatively greater amount of clothing.

These things taken into consideration, we should begin as early as we consistently can to accustom the child to the adversities of the weather.

To thoroughly cover the ground on the subject of the prevention of colds would be about equivalent to enumerating all the known laws of personal hygiene; for undoubtedly every factor which tends to the conservation of the general health of the individual and to the maintenance of a vigorous tone of the body strengthens his resistance against catching cold.

There are, however, certain prophylactic features that bear more directly than others and which therefore may be profitably dwelt upon and emphasized.

Colds in the head, or the general catarrhal tendency, is observed perhaps more frequently in those who lead a sedative life, and are inclined to a gouty, plethoric, or costive habit than any other class of persons. Exercise, therefore, and especially exercise in the open air, walking, horseback riding, golf, tennis, etc., is indicated.



If the gouty diathesis is manifest, alkaline mineral waters, or other remedies suitable to this condition, should be taken. It is of the utmost importance that the digestive functions be well-regulated, as there undoubtedly exists a close relationship between the gastro-intestinal tract and the nose and throat.

Persons who have a weakness in this direction must avoid excesses in eating, and particularly deny themselves hot bread, rich pastries, gravies, liver, fatty meats, and the dark meat of goose and ducks. They should eat fresh vegetables, greens, fruits, and drink plenty of water.

Excesses in smoking and in alcoholic drinks are likewise injurious.

Persons who are disposed to perspire freely must be particularly cautious with regard to drinking gin, brandy, whiskey, etc., and then exposing themselves to a low temperature, as they can thus easily put themselves in a situation very favorable to contracting a cold.

Of considerable importance is the atmosphere of the dwelling. Dark, damp and poorly ventilated living rooms or work-shops, contribute largely to the weakening of the membranes of the nose and throat, while sunlight and fresh air act in the opposite direction. Draughts, of course, should be avoided, but they are less to be dreaded than a vitiated atmosphere.

Dust, and the innumerable microbes which generally accompany it, are hostile to the nasal membranes, and therefore to be avoided.

The pernicious habit that still prevails in many houses of sweeping and dusting in such way as only to set the dust in motion and stir up quiescent germs, should be corrected.

Those occupations which expose the employe to grime, smoke and soot, such as railway engineering, or occupations attended with the necessity of constantly breathing irritating fumes and vapors, ought, of course, if possible, to be avoided by those who are catarrhally disposed.

The dry furnace heat of many of our office buildings and dwellings is held responsible by some physicians for the frequency of colds, and the prevalence of catarrh.

The explanation is sought in the increased demand made thereby upon the vascular and glandular elements of the nasal mucous membrane to supply the moisture required to bring the

inhaled air up to the proper degree of saturation previous to its entrance into the lungs. The open grate fire is purifying to the atmosphere of a room by reason of the ventilation which it effects.

The temperature of our living rooms in winter should be kept neither so warm as to unfit us for a transition into the cold air outside, nor yet should it be so cold as to be uncomfortable and give rise to a continuous sensation of being chilled.

I do not advise, however, that one should be everlastingly consulting a thermometer to discover whether or not he is living in a proper temperature, as such over-zealousness in this respect is but a short step from actual coddling. I consider one's own feeling of comfort the best thermometer for general use.

How shall we dress so as best to ward off colds?

The chief consideration under this head is as to underwear ; so the question first to be answered is, Shall we wear woolen, linen, silk or cotton undergarments?

For some years our text books on hygiene, and likewise many physicians, have been preaching "wool" as the proper material for underwear ; but very recently, especially among the nose and throat specialists, a strong sentiment has developed in favor of linen.

The two properties for which wool has been extolled as superior to all other material are its poor conductivity of heat, by virtue of which it keeps the body warm, and its high degree of hygroscopicity, by virtue of which it readily absorbs the body secretions. There is, however, a disadvantage in wool, in that it shrinks considerably with washing, and there is also another disadvantage, not usually dwelt upon, viz : that in the washing the soda and strong soaps remove from the wool the animal oil upon which, in some measure, its warmth depends. But, both as regards heat conduction and capacity for absorption, whatever the material may be, much depends upon the weaving.

Linen, if loosely woven, gains a great deal in point of warmth, because the interstices are then filled with air, which is a poor conductor of heat. Its hygroscopicity is also heightened, and it really becomes superior then to other material in capacity for quickly absorbing and giving out by evaporation the moisture of the body. This last mentioned property is of far greater importance than warmth, considered from the standpoint of cold-catching. A garment that, like cotton, retains the perspiration and

becomes cool and clammy next to the skin may be a prolific source of colds.

As to warmth of underwear, a mistake can be more easily made in having it too warm than the reverse. Persons who spend most of their time in winter indoors will have their houses or offices heated to a temperature equal to the average summer weather. They do not need, therefore, during that time to be so warmly clad, but should provide sufficiently warm outer garments to protect against the cold of the outside.

Children, as already remarked, and old persons and invalids, may find that the linen underwear does not keep them sufficiently warm. Such may wear wool, or perhaps better, thin woolen garments over the linen.

An underwear recently put on the market under the name of "Ramie" (being a product of the plant of the genus *Boehmeria*) is highly extolled upon about the same grounds as those claimed for linen. Only a limited experience seems to confirm the good report that has gone out in its favor.

Of the very highest importance, from the cold-catching standpoint, is the wearing of a sufficiently protective covering to the feet. Here there is a comparatively large surface exposure, and the danger of catching cold by getting the feet wet, standing on cold, damp pavements, is too well understood to need to be much emphasized. In this we can take a valuable lesson from the Europeans, who wear, generally, shoes which have soles of about twice the thickness of what is usual with us.

Rubbers, at times, cannot be dispensed with, but as far as possible we should discard them, having the feet protected by extra thick soles.

The paper-soled and low-cut shoes affected by so many of our women, even throughout winter, cause, probably, first and last, more illness, and if we were able to trace their ultimate evil results, even more death, than the dreaded typhoid or the alarming appendicitis.

With regard to the wearing of full dress, all that need be said is that since this form of dress for men, as well as women, protects less than our ordinary day wear, we must take precaution to wear sufficient overclothes or wraps, in our transition through the chilling night air from one abode to another.

We come now to speak of the most important of all the prophylactic measures against colds—namely, cold-water bathing.

We cannot here go into the philosophy of its action any farther than to call attention to the oft-demonstrated interrelationship between the skin and mucous membrane; to the fact that the skin is a great excretory organ, whose failure to act is reflected largely upon the respiratory mucous membranes; and to the fact that it is provided with a rich capillary circulation, capable of holding one-third of the entire blood of the body, which is subject to the external application of water through the contractility of the cutaneous vessels.

What we call the hydrotherapeutic action of water in distinction from its purely lavatory function, is that which is chiefly regarded in this connection. Nevertheless, it is probable that the mere cleansing process is also of value. The skin, with its millions of glands secreting fatty and sebaceous matter, and with its constantly shedding epithelium, becomes quickly covered if not washed, with a scaly crust, which must interfere, to a marked degree, with the performance of its function.

The use of warm water and soap over the entire body would seem, therefore, to have some place in the discussion of this subject.

Frequent cold bathing is, however, the treatment *par excellence* to lessen the susceptibility to colds.

Individual constitutional differences have to be taken into consideration to determine how long and often and in what form these cold baths should be administered. For some persons it is wisest to practice a mere cold sponging; others will profit by the plunge, and still others will be hardy enough to stand the shower. The criterion is to be found in the reaction which follows. There should be a warm glow and a sensation of comfort and exhilaration, else the bath is not accomplishing the good that is intended.

Those who are not accustomed must proceed gradually, and there will be found but very few persons who, in a little time, cannot with pleasure, as well as profit, take at least a morning cold sponge, and most will bear a full immersion bath of from sixty seconds to two minutes. It is well to have the bath preceded by a few minutes' exercise, and if, also, during the bath, a certain amount of exercise be kept up, as by active splashing and



rubbing, the cold will be felt less and the reaction will be made surer.

The room should be comfortably warm, and the bather should have at his disposal handy crash towels, which he begins, immediately after his exit from the bath, to apply to the whole surface of the body with such energetic friction that the skin becomes quickly dry and red and pervaded with an agreeable glow.

Delicate individuals, who are easily susceptible to the shock of very cold water, will do well to begin with a hot bath; then allow much of the hot water to escape and let the cold water flow in rapidly:

There is no danger, as some fear, in going immediately from a very hot to a very cold bath, and hydrotherapeutists agree in advising that all warm and hot baths should be followed at least by a quick, cold sponge.

It is said that those who are slow to get the usual reaction will benefit by an oil rub two or three times a week, following the bath.

In cases where there is a particularly inactive cutaneous circulation, and a condition of almost continuous engorgement of the vascular tissue of the nose, even more energetic hydriatric operations than those mentioned ought to be undertaken, such as the alternate hot and cold sponging of the cervical spine, or the alternate hot and cold spinal douche, procedures which cannot generally be satisfactorily carried out, except in some well appointed institution.

Before closing that part of this article devoted to prophylaxis, mention should be made of the necessity of administering the proper local treatment to a possibly existing hypertrophic, or atrophic rhinitis, and of ridding the nose of any spur, polyp or other new growth which obstructs the respiration or seriously interferes with other functions of the nose, or which produces pressure and irritation and thus contributes to the general predisposition to catarrhal troubles.

#### TREATMENT OF A COLD IN THE HEAD.

The treatment of an acute rhinitis, or cold in the head, in order to be appropriate and effective, must be considered in regard to the three distinct stages into which this affection is clinically divided.

In the first, which is marked by general systemic disturbance, chilliness and fever, malaise, incapacity for mental occupation, and headache, the treatment should be chiefly, if not exclusively, general; in the second, marked by an outpouring of serum, the treatment should be a rational combination of general and local; and in the third, in which all constitutional symptoms have subsided and there is a change from the serous into the mucous or muco-purulent discharge, local measures alone are indicated.

It is in the first stage that the so-called abortive treatment is applicable. If the patient comes under observation within the first 24 hours from the beginning of the attack, undoubtedly the course of the rhinitis can frequently be stopped.

In order to accomplish this the patient should realize the importance of a cold and give himself up to treatment. It is better in this stage that the patient remain indoors, especially if the weather be inclement or there be much fever and constitutional disturbance. He should keep the room warm enough to overcome the sensation of chilliness, and, if so situated that it can be done, warm, dry cloths should be kept in contact with the cervical spine. Laxative remedies should be administered. In the evening, before retiring, measures should be adopted to produce a thorough sweating, either by a hot immersion or vapor bath or hot water and mustard foot bath, together with copious draughts of a hot, weak punch or lemonade, and, if need be, a dose of Dover's powder, these measures to be followed by wrapping up in blankets, in order to continue the diaphoretic action.

The next morning the patient begins to take a remedy for internal administration, selected in accordance with the symptoms or the constitutional habit.

In case of a full, bounding pulse the proper drug is aconite or *veratrum viride*. Aconite lowers arterial tension and at the same time increases the action of the kidney and skin, which is precisely what is indicated in this stage.

If there be much fever and intense headache, antipyrine should be added, making the following prescription :

Tincture of aconite, 12 drops; antipyrine, 2 grams; simple syrup, 50 cc.

Teaspoonful every hour for six doses, then every two hours.

If the patient be of a gouty or rheumatic disposition, alkaline

remedies will be of service. Bulkley claims to have had very great success in aborting acute rhinitis by the administration of bicarbonate of soda, which he prescribes in 20- to 30-grain doses, given every half hour until three doses are taken, the fourth dose being taken at an interval of an hour after the third. This course can be repeated two or three times, if necessary.

The benzoate of soda recommended by Ruault in 1885 is used in France for the same purpose. It is claimed to be effective in about half the cases—if not breaking up the cold, at least favorably modifying its course.

The second stage of acute rhinitis, characterized by the excessive flow of serum, calls for a change in the internal treatment and the beginning of local measures. For internal administration the most useful drug during this stage is belladonna.

The following combination has seemed to me to have given excellent results :

Tincture of belladonna and deodorized tincture of opium, each 3 cc.; fluid extract of cimicifuga, 10 cc.; syrup of tolu, to 50 cc. Teaspoonful every four hours.

For children it is better not to give belladonna or opium, but some preparation containing chloride or carbonate of ammonia, or liquor ammonii acetatis should be substituted in young children for both the first and second stages.

Local measures may be instituted in the second stage of an acute rhinitis. It must be clearly understood that all the various astringents, such as zinc salts, nitrate of silver, etc., which are useful in chronic catarrh, are absolutely without avail in this stage of acute rhinitis, and, if anything, their introduction into the nasal fossae only serves as an added irritation.

Cocaine and suprarenal extract bring about a temporary contraction of the nasal vessels and are admissible in cases of great discomfort from the intumescent tissues, the physician, of course, exercising caution and judgment in order not to be responsible for the beginning of the pernicious cocaine habit.

Outside of the intolerance of the inflamed mucous membranes for anything, the least irritating, in this stage of rhinitis, there must be considered the danger of setting up an acute otitis by the careless use of watery solutions.

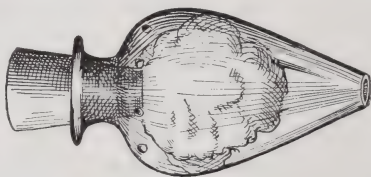
Probably the most acceptable manner of administering local

treatment to the acutely inflamed nasal mucosa is by steam or dry inhalation.

Menthol, benzoin, hops, eucalyptus, are suitable for steam inhalation, but care should be taken that the patient does not go out for some hours after using medicine in this way.

Persons who cannot, or will not desist from their usual daily occupation, can derive great comfort and benefit from the frequent dry inhalation. Menthol, iodine, camphor, etc., used in this manner, according to Ingals, is frequently effective in averting an attack of acute rhinitis.

I have had our local instrument maker, Mr. McKee, construct for me a glass nasal inhaler that can be carried about in the pocket. I lay no claim to ingenuity in its invention. It is the outcome of my own frequent need of something in this line, simple, convenient and cheap.



The combination which I most frequently prescribe is camphor and menthol, each 5 parts ; alcohol, 25 parts ; chloroform, 2 parts ; of which I direct a few drops on cotton in glass inhaler, to be used at frequent intervals during the day.

If there are evidences of a descent of the process, the following formula may be substituted, the patient taking sufficient long breaths to carry the vapor through the nose or, if so desired, directly through the mouth into the lower respiratory tract : Carbonate of ammonia, 1 part ; glycerin, 15 parts ; tincture of benzoin, 5 parts ; alcohol to 25 parts.

Bosworth indorses the following formula, which originated with Futsch : Glacial acetic acid and carbolic acid, each 2 grains ; oleo-balsam mixture, 8 grains ; tincture of musk, 1 grain.

In the case of very young children who are rebellious to local treatment of any kind, we may use a 2 per cent. or 3 per cent. solution of menthol in almond oil, dropped into the nares by means of an ordinary eye dropper.

For the excoriation of the upper lip produced by the irritation of the nasal discharge, an ointment containing oxide of zinc will prove efficient.

The third stage of an acute rhinitis, marked by a transformation of the serum into a mucous or muco-purulent discharge, is a



period requiring attention particularly to the local treatment of the membranes.

This stage is present when the patient speaks of his cold as having "broken," because of the diminution of the uncomfortable swelling which has been present, and the acquirement of the ability to expel a considerable amount of secretion by blowing the nose.

He is possessed with the prospect of a speedy cure, and is disposed to neglect from this time all remedial measures. But it is just at this time that the secretions are most loaded with pathogenic organisms—diplococci, bacilli coli, and, in greatest profusion, the staphylococci, and it is, therefore, the time when we need to adopt especially active measures against the diseased processes. Failure to do so exposes the patient to danger of infection of the ears or the neighboring sinuses, or to extension of the inflammation downward, eventually to the lower respiratory tract, or, what is just as much to be dreaded, a conversion of the acute into a chronic process, with all the attendant ills of a persistent nasal catarrh.

The indications then are to employ at this stage alkaline antiseptic washes to free the nasal cavities of the germ-laden secretions, to apply to the membranes astringent drugs of suitable strength or other agents judiciously selected in the form of spray, vapor, sweat, ointment or insufflation, as may seem best, for the purpose of producing a healthy alteration of the membranes and, as quickly as possible, restoring the normal condition of the nasal fossae.

Of particular importance is a close supervision of the orifices of the various accessory sinuses, which must be neither allowed to remain covered with inspissated secretion or to stay closed from swelling of the tissue in or about them.

This line of treatment should be persisted in until the last vestige of the "cold in the head" is found, upon inspection, to have disappeared and the patient no longer is conscious of any lingering symptoms of a catarrhal nature.

#### DISCUSSION OF THE PAPERS OF DRs. CLAYTOR AND WELLS.

**Dr. S. S. Adams**, who was asked to open the discussion, congratulated both essayists. Their subjects were both practical and timely, and had been so fully presented that little more could be

said. The main thing was the differential diagnosis. If the bronchitis was due to chronic organic heart disease, or gouty diathesis, the indications for treatment were different. In his remarks he would not speak of bronchitis due to organic heart disease.

In this city we had many different classes of patients to treat. Most of the treatment prescribed was applicable only to the paying class—change of residence. This was the best remedy of all, but how few could avail themselves of it. To advise it was to rob both patient and physician of the hope of benefit. Some of those who were financially able to take up a residence in a different climate were prevented from doing so by business considerations. Such patients must have home treatment. Then, the control of the patient became a matter of prime importance. If he would remain at home and carry out the treatment prescribed, better results could be obtained than when he went out in inclement weather, etc.

Dr. Adams endorsed Dr. Claytor's treatment for dry and purulent forms of chronic bronchitis. Different authors expressed different opinions as to the best medical treatment, and as a matter of fact we learned from experience the prescriptions best suited for individual cases. Generally speaking, inhalation was the best mode of administration. He had given by mouth to old and young, creasote, guaiacol, terebene, and the rest of the list, but had met with disappointment, particularly in bronchorrhoea. Here, however, inhalations of eucalyptol, in warm vapor with compound tincture of benzoin, gave much relief, and modified the secretion. The trouble was, however, that the patient was usually subject to relapse. Opiates gave good results in relieving the severity of the cough, but they should be given with great care to young children.

He approved the sentiments expressed in Dr. Wells' paper. Hygiene was of the very greatest importance in the prevention of "colds." But while we advised and adopted these suggestions, we had "colds" just the same. All depended on the natural resistance of the individual. Apparel was of less importance than was usually believed. A gentleman recommended to him linen-mesh underwear as being an absolute preventive for "colds." The next day this very man had one of the worst "colds" that Dr. Adams had ever seen.

**Dr. Bermann :** The subject had been so well covered that there was little to add. He did not agree with previous speakers that woolen underwear was best ; it meant a cold all the time. Jaeger garments had also failed to give satisfaction in his own case and that of his patients. Since he had been wearing balbriggan underwear he had had fewer colds than ever before. Dr. Claytor had omitted to mention the inhaler which Dr. Bermann had exhibited before the Society a few months ago. He had never known the

ammonium chloride inhalations to fail, particularly in chronic bronchitis of the recurrent type. Apomorphia was depressing. He often gave syrup of iodide of iron with good results.

**Dr. Hunt** emphasized the value of an abundance of fresh air in the treatment of chronic bronchitis. We were too much afraid of it. Fresh air was an important part of the treatment at the various sanatoria, *e. g.*, at Saranac, where Dr. Trudeau had used it ever since 1884. Most of the patients there were directed to remain out doors 8 hours daily and to leave their windows open at night. If the snow came in it was shoveled out in the morning. There was only one case of pneumonia in the village last winter, and this in a place where the majority of the people were invalids.

**Dr. Wood** advocated syrup of hydriodic acid. It did good in some cases, particularly when there was also a rheumatic tendency. Air baths were preferable to water bathing for some patients, especially those with a weak nervous system; they walked around naked, rubbing themselves vigorously meantime. Cold baths depressed some patients, and caused too much shock. He asked Dr. Wells as to the difference between the dark and the light meat of a fowl; he had read of the distinction ever since he began to practice, and wished to learn exactly what the difference was.

**Dr. Belt** called attention to the importance of growths in the nasal cavities, enlarged turbinates, etc., as predisposing factors in the production of colds. They should always be looked for, and removed, if found.

**Dr. Nichols** said that infection was undoubtedly an important factor in the production of colds. The field had not been thoroughly investigated, and it was not known exactly what part bacteria played in this connection, but many things pointed to the correctness of the view above expressed. In a cold there were acute local symptoms, and also general symptoms; the disorder was self-limited, and subsided like an infectious disease. These facts indicated that it was of bacterial origin. If this was true, the causes so far mentioned had been given undue importance, although too much emphasis could not be laid upon the matter of hygiene. There were fewer colds in the arctic regions because there were fewer bacteria. The laity had a relatively exaggerated idea of the importance of cold in the production of colds. Formerly we thought that exposure caused a wound to be seized with a cold; now we know that it was a matter of infection.

This mistaken idea was productive of evil results. Some persons thought that baths in winter were harmful, that they predisposed to colds; hence they shunned bathing, unmindful of the fact that dirt was a much more important factor than cold in the production of disease. Humidity was also an important etiological factor. The body underwent a great change when we passed from the dry atmosphere of a heated room into the more humid air outside, and the sudden shock to the vaso-motor system



might have brought on a cold. Sudden changes of humidity were really responsible for much of the evil which had been ascribed to cold.

He asked Dr. Wells as to the value of quinine in colds; it was prized so highly by the laity. Cod-liver oil in chronic coughs was also popular, but he believed that its value was largely mythical. He recommended fluid extract of *hydrastis canadensis* in chronic bronchitis.

**Dr. Reyburn** said that colds were always with us. What was the main object of treatment? Bacteria must have a suitable soil. The symptoms pointed to stoppage of perspiration as the most important effect of a cold. The object, then, was to restore the function of the skin. This could best be done by the vapor bath. Portable apparatus for this purpose could now be obtained, and the method would cure any cold that he had ever seen. Next in value came the hot bath. Give Dover's powder and phenacetine, 5 grains each, at bed time, and let the patient drink a bowl of hot liquid and then get into a warmed bed. In his experience, this had proved the best treatment for an acute cold.

In chronic bronchitis, cod-liver oil was a valuable remedy for many patients. Look to the general condition of the patient. Give alkalies if there is a rheumatic tendency. Cod-liver oil cured many; it relieved the local condition, built up the patient and added to his powers of resistance.

**Dr. Claytor**, in closing, said that so far as ability to take cold baths was concerned, each case must be studied individually, and treated accordingly. The great majority of patients, however, could take cold sponge baths. Dr. Nichols had said that bacteria were probably the cause of many colds. They were the exciting cause, exposure being the predisposing cause. The remarks as to humidity were *apropos*. Opinions differed as to the efficacy of cod-liver oil; almost everyone had tried it, and some had good results, others poor.

**Dr. Wells**, in closing the discussion on his paper, agreed with Dr. Nichols as to the infectious character of some colds. The etiology of colds, however, did not come within the scope of his paper. He had little faith in the efficacy of quinine in these cases, and believed that the beneficial effects were largely due to diaphoretics taken at the same time. He had had little personal experience with the remedy in connection with colds.

**Dr. Kober** explained that the dark meat of fowl differed decidedly from the light meat. The former contained more haemoglobin, more proteid matter, and more extractive, which gave it flavoring quality.



## REPORT OF A CASE OF GUN-SHOT WOUND.\*

By A. R. SHANDS, M. D.,

Washington, D. C.

Wm. C., age 28, having a patriotic desire to arouse the people of Kenilworth, D. C., early on the morning of the 4th of July, 1903, with a loud report, had made a small cannon by taking several feet of a  $\frac{3}{4}$ -inch gas pipe, and closing one end with a stout iron cap tightly screwed on, and filing a small hole several inches from the end for a fuse. The charge with which he loaded his gun consisted of about  $\frac{1}{2}$  oz. of black powder and paper wadding. The charge of powder proved to be more than his gun could stand, for the pipe was blown into many fragments of various sizes. A piece  $2\frac{1}{2}$  inches long,  $\frac{1}{2}$ -inch wide, and  $\frac{1}{8}$ -inch thick, struck him in the left side of his scrotum, passed through the left testicle, completely destroying that organ, passed through the lower end of the right testicle and the posterior aspect of the thigh and lodged in the gluteal muscles just external to the trochanter major.

July 6, I was called in consultation by Dr. L. S. Savage, his physician. I found the scrotum swollen to at least three times its normal size and very much discolored, the discoloration extending from well above the symphysis pubis to the anus and several inches over the anterior aspect of the buttocks. His temperature was 103 at this time, and the wound was discharging a very foul-smelling sero-sanguineous fluid. In short, his condition was one of acute sepsis. I urged an immediate operation. He was removed to Sibley Hospital, and as soon as he could be prepared was put on the operating table. At this time I discovered quite an enlargement behind the right trochanter. Through a 2-inch incision it was found that this enlargement was due to the presence of the above described piece of pipe.

The operation consisted of the complete removal of the left testicle, repair to the injured right testicle, and establishing through-and-through drainage from the wound in the scrotum to the incision in the external aspect of the thigh.

The patient made a rapid and uninterrupted recovery.

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\* Reported with specimens to the Medical Society of the District of Columbia, December 9, 1903.

CASE OF APPENDICITIS WITH THE APPENDIX IN THE SAC OF A *FEMORAL* HERNIA.\*

By A. R. SHANDS, M. D.,

Washington, D. C.

Mrs. O., widow, age 29, mother of one child, now 7 years old. The patient was a very robust woman, and had always enjoyed exceptionally good health. She first noticed a swelling in her right groin four years ago; it had developed very gradually, and as it had given her little or no pain or inconvenience, and had always disappeared when in a recumbent position, she gave it little or no thought until the latter part of October, 1903, when she noticed it was increasing very rapidly in size, was very painful to the touch, and did not disappear, as formerly, when in a recumbent position.

She consulted her physician, Dr. L. S. Savage, October 31. He found the condition above described, and that she had a temperature of 101. I saw her in consultation with Dr. Savage the next day, and diagnosed a case of incarcerated femoral hernia and advised an early operation, not urging an immediate operation, as there were no symptoms of strangulation. The hernia was about the size of a duck's egg, and was somewhat of the shape of an hour-glass; this was due to a constricting band around the center of the mass. The hernia was very tense and extremely painful on the slightest manipulation, and apparently irreducible by manipulation. Her temperature was at that time 100.

She was admitted to Sibley Hospital November 2 and was operated on the morning of the 3d.

Through the usual incision for operating on a femoral hernia the hernial protrusion was enucleated from the surrounding structures *en masse*, exposing the neck of the sac at its point of exit from the femoral ring. On opening the sac there was a gush of peritoneal fluid, which was confined under considerable pressure. There was neither intestine nor omentum in the sac, but firmly adherent on one side was the appendix with the distal end ulcerated and much enlarged. On examination it was readily seen that the internal membrane of the sac presented the condition of an acute peritonitis extending to the lumen of the neck of the sac,

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\* Reported with specimen to the Medical Society of the District of Columbia, December 9, 1903.

whose walls were closely adherent as the result of the acute inflammatory condition of the peritoneum, thus confining the peritoneal fluid to the hernial sac and protecting the general peritoneal cavity from the invasion of the peritonitis.

After separating the appendix from its attachments it was amputated in the usual way and the wound closed in the usual manner of doing a radical operation for femoral hernia. Primary union resulted, the patient making an excellent recovery and left the hospital in two weeks.

It would seem that nothing new in the way of appendicitis could be offered to this Society after the numerous papers that have been read before it on the subject, and especially after the very recent and exhaustive paper on the subject by one of our honored members; nevertheless this case does present something entirely new, in that the appendix was accidentally found presenting all the clinical features of an acute appendicitis outside the abdominal cavity.

After exhausting, with a negative result, every resource at my command to ascertain if ever such a case had been recorded, I wrote to Dr. W. B. Coley, of New York, who has probably done more herniotomies than any other man in this country, to know if he had ever encountered such a case. The following is from his reply:

"I have never personally found the appendix in the sac of a femoral hernia, although I have seen it a good many times in inguinal hernia, once upon the left side. I also saw Dr. Carl Beck operate upon a case of irreducible femoral hernia some years ago, in which the appendix was found in the sac, though there were no symptoms of strangulation or incarceration in this case.

"I think your case must be very nearly unique. I have recently operated on a similar case, an inguinal hernia in a female, in which the appendix was incarcerated and much inflamed."

**Dr. I. S. Stone** said that he had looked over the literature on the subject and had found no similar case. He found two cases recorded in which the appendix was in the sac of an inguinal hernia, one occurring in America and the other in France. An interesting monograph on "Appendicitis Outside of the Body" could be found in the Library of the Surgeon General's Office.

## CHOLECYSTECTOMY FOR RESULTS OF BILIARY OBSTRUCTION AND CHOLANGITIS.\*

By I. S. STONE, M. D.,

Washington, D. C.

Mrs. M., white, age 49, native of the United States, mother of three children; admitted to Columbia Hospital, Washington, November 3, 1903. About three years ago began to have pain in region of stomach and liver, apparently due to acute indigestion. Several attacks during this time required the attendance of a physician, but there was no positive evidence of gall-stone colic or jaundice. The last attack began one month prior to her admission to hospital, and was attended with severe pain in region of stomach and gall bladder. Dr. Moran was called to see her, and I am indebted to him for a detailed account of her symptoms prior to admission to hospital.

She had had at least four distinct attacks of gall-stone colic, requiring large doses of morphia. Her skin and conjunctivae were greatly discolored, and her urine and feces also gave positive evidence of biliary obstruction. She had temporarily recovered from the attacks of pain, not having had a seizure for some days previous to her admission, and there was possibly less jaundice than before. We found great tenderness and distinct induration between the ensiform cartilage and the site of the gall bladder. This point was immediately below the ensiform, and a little to the right of the median line; the gall bladder could not be definitely located, being lost in the midst of an indefinite mass in the region named. She was not a good subject for operation; she had cystitis and an old nephritis besides a chronic bronchitis, a combination which caused us some anxiety, and which necessitated all possible speed in operating.

An incision was made from the ensiform downward and six inches to the right, opening the sheath of the right rectus muscle after the method of Professor Kehr. The gall bladder was large, but not greatly distended, but was so much changed in appearance as to be almost unrecognizable; it was much thickened and quite adherent to the adjoining peritoneal surfaces. The mass near the median line gave the greatest pain, and what really

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\*Reported with specimen to the Medical Society of the District of Columbia, December 9, 1903.



drove the patient to operation proved to be an adhesion of the liver to the parietal peritoneum over a sinus which had its origin in the hepatic duct. A sound easily passed through this opening into the foramen of Winslow. The upper opening of the sinus was near the umbilical fissure, and we were somewhat divided in opinion as to the exact cause of the abscess which had existed there. After the gall bladder had been removed it was possible to pass a sound through the common duct, which, with careful palpation, enabled us to declare the absence of any form of obstruction. The patency of the choledochus permitted us to ligate the cystic duct with safety, and we were also sure of our position because bile in considerable quantity escaped from the hepatic duct during our examination of the sinus with the sound. Careful examination of the adjacent organs disclosed no further lesions, and, after placing the proper packing and drainage tubes, the wound was closed and the patient put to bed in fairly good condition.

The operation lasted ninety minutes, and its result gave us no little anxiety on account of her condition already mentioned. The immediate effect was to greatly diminish the quantity of urine, and to aggravate the already existing bronchitis. We used ether on account of the heart lesions, and this served to produce an excessive discharge of thick, purulent mucus, a most annoying complication under the circumstances. The volume of urine was also greatly diminished, being only 10 oz. in 48 hours.

On the third day she began to improve. Large quantities of bile were discharged from the wound from the time of operation, and continued to flow until the end of the third week. All symptoms of biliary absorption promptly disappeared and she has nearly recovered in every way. A small rubber tube, which will soon be removed, remains in the wound. It is now a little over four weeks since the operation, and the patient is ready to leave the hospital for her home.

RESOLUTIONS ON THE DEATH OF DR. MOSES  
BRÜCKHEIMER.\*

WHEREAS, in the dispensations of an all-wise Providence, DR. MOSES BRÜCKHEIMER, a useful man and esteemed physician, has been called from our midst,

*Be it Resolved* : That this Society expresses its loss in the death of such an esteemed member and earnest worker.

Dr. Moses Brückheimer was born in Germany, April 2, 1836, obtained his degree from the Columbian University, Washington, in 1868, and until his death at 67 years of age, successfully practiced his profession, being a member of both the Medical Association and Society of the District of Columbia; and it is hereby

*Resolved* : That we extend our sincere sympathy to the relatives of Dr. Brückheimer, and that these resolutions be spread upon the minutes, and that a copy be sent to the family of the deceased.

A. BEHREND,

B. L. HARDIN,

THOMAS S. D. GRASTY,

*Committee.*

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THE DEATH OF DR. JOHN F. PRICE.†

DR. JOHN F. PRICE was born in Charles County, Md., November 23, 1850. He graduated in medicine at the Washington University, now the College of Physicians and Surgeons, Baltimore, Md., in 1875, and practiced for 15 years at his home in Maryland.

In 1890 he came to Washington and located in the southwestern section of the city, where he built up a comfortable practice, and was a busy man during the winter of 1901, when the annual visitation of *la grippe* numbered him among its victims.

He did not recover well from this illness, but later in the year developed pulmonary tuberculosis, and removed to Colorado in the hope of arresting the disease.

Not improving in health he went to North Carolina, where he remained until about six months ago, when he returned to this city.

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\* Reported to and adopted by the Medical Society of the District of Columbia, December 16, 1903.

† Report of Committee to the Medical Society of the District of Columbia, December 2, 1903.

During this long siege of two and a half years he opposed his malady with all the weapons that good care and skilful treatment afforded, and, finding his efforts fruitless, met death with the resignation of a brave man.



WHEREAS, Dr. John F. Price, a member of the Medical Society of the District of Columbia, died in Washington, D. C., November 17, 1903, therefore be it

*Resolved*, That the Society hereby expresses its sorrow at the loss of a worthy member and a skilful and conscientious physician.

*Resolved*, That this resolution be entered on the records of the Society, and a copy be sent to the family of the deceased.

G. R. LEE COLE,

G. P. FENWICK,

R. T. HOLDEN,

*Committee.*

## REPORT OF THE MILK COMMISSION OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

WASHINGTON, D. C., *October 7, 1903.**To the Medical Society of the District of Columbia :*

The Milk Commission of the Medical Society of the District of Columbia, in accordance with instructions of the Society made at the stated meeting in July, respectfully submits the following report :

The Milk Commission of the Medical Society of the District of Columbia had several meetings prior to the stated meeting in July, and adopted a series of regulations, a copy of which was presented at that meeting and subsequently printed in the WASHINGTON MEDICAL ANNALS (Appendix A).

The Milk Commission was incorporated, according to the laws of the District of Columbia, on June 30, 1903 (Appendix B). Incorporation was necessary for two reasons : first, to relieve the individual members of the Commission of liability, and, second, in order to make valid contracts with the subscribers or patrons of the Commission.

The officers of the Commission are : President, Dr. E. A. De-Schweinitz ; Vice-President, Dr. S. S. Adams ; Treasurer, Dr. W. M. Sprigg ; Secretary, Dr. J. H. McCormick.

A competent corps of scientific assistants has been selected, and they will begin the scientific work as soon as directed by the Commission.

In undertaking to give to the City of Washington a better and more wholesome milk supply the Commission realizes that it has undertaken a gigantic task, which can only be successfully accomplished by the active coöperation of every member of this Society. As a factor in preventive medicine, every physician should lend his support to this effort to obtain a good clinical milk supply, as he is not only serving the interests of his patients, but of himself and family. Milk producers and dealers are not willing to incur the expense of the inspections required to accomplish the object of the Commission unless there is a public sentiment and demand for it. This can only be brought about by the physicians requiring their patients to purchase milk from inspected dairies, and by purchasing it for their own use. Investigation by the Commission has developed the fact that most physicians have been too lax in their requirements for the milk furnished their patients, relying chiefly on the statements of the dealer or an ocular inspection, which is of practically no value. The Health Department has demonstrated that a greater part of the mortality of children in the summer months is due to a faulty milk supply or to artificial advertised foods. It is granted that many physicians resort to the latter because they have difficulty in obtaining a good clinical milk. Heretofore all movements of this sort have



failed because the medical profession have been indifferent to the subject or failed to patronize the dealers who have offered to furnish a proper article. As this must be practical to be successful, milk dealers must be assured of a need or demand for milk of the standard required.

All similar movements have failed for several reasons in addition to that mentioned, namely lack of professional interest and demand. The first reason is that stock companies were formed and the physicians asked to subscribe money to run the plant, and they failed to obtain sufficient capital to properly establish and run a plant of the required size. This very course was the cause of the second and most serious reason for failure, that by patronizing one plant all other dealers at once became antagonistic and used all their power to bring about a failure and succeeded. By the regulations adopted by the Commission all dealers are placed on the same footing and they enter into the movement or not as they please. The more reliable dealers and producers admit that something is necessary to improve the milk supply and are ready to help in the movement, provided there is a public demand to justify the added expense to themselves.

#### APPENDIX "B."

##### *Articles of Incorporation of the Milk Commission of the Medical Society of the District of Columbia.*

The undersigned desire to associate themselves as a corporation for the promotion of the science and art of dairying and to avail themselves of the provisions of subchapter III of chapter XVIII of the Code of Laws for the District of Columbia, enacted March 3, 1901, and amended by Acts approved January 31 and June 30, 1902, and therefore certify as follows :

1. That the name by which such corporation shall be known in law is the Milk Commission of the Medical Society of the District of Columbia.

2. That said corporation is organized in perpetuity.

3. That the particular business and object of said corporation is to establish clinical standards of purity for cows' milk, to provide for chemical and biological examinations of such milk, and for the periodical inspection of the live stock and dairies of subscribers by competent veterinarians, and to secure for the consumers of milk in the District of Columbia a pure milk supply.

4. That the number of directors of said corporation for the first year of its existence shall be five.

WM. M. SPRIGG, M. D.,  
WM. C. WOODWARD, M. D.,  
E. A. DE SCHWEINITZ, M. D.,  
SAMUEL S. ADAMS, M. D.,  
J. H. MCCORMICK, M. D.

Made, signed and acknowledged before me at Washington, D. C., this 30th day of June, 1903.

HARRY CLAY McLEAN, *Notary Public.*

DISTRICT OF COLUMBIA,

OFFICE OF THE RECORDER OF DEEDS,

*August 14, 1903.*

This is to certify that the foregoing is a true and verified copy of a Certificate of Incorporation, and of the whole of such certificate, as received for record on the *First* day of *July*, 1903, 3.10 P. M.

(Signed)

R. W. DUTTON, *Deputy Recorder of Deeds.*

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## REPORT OF THE EXECUTIVE COMMITTEE ON THE MILK COMMISSION OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

*November 18, 1903.*

*To the Medical Society :*

In obedience to instructions from the Medical Society, the Executive Committee has inquired into the status of the Milk Commission of the Medical Society, and into the propriety of the payment by the Society of certain indebtedness incurred by the Commission.

On April 29, 1903, the Milk Committee of the Medical Society submitted to the Society a report in which it was recommended that a committee be appointed to formulate plans for the creation of a milk commission. On the same day this report was adopted by the Society. On May 20, the President of the Society appointed Drs. S. S. Adams, de Schweinitz, McCormick, Sprigg and Woodward as the committee authorized by the adoption of this report.

No formal notice of the purpose of this committee was sent to the members of it, but such of the members as had been present three weeks before, when the report of the Milk Committee was adopted, were allowed to rely upon their understanding of that report as they heard it read, and the others had to rely upon what was told them by the members who had heard the report. On the basis of the understanding thus reached, the committee proceeded to create a Milk Commission instead of to formulate plans for the creation of one. In doing so it deemed it essential to take out articles of incorporation so that it would not be necessary to wind up the affairs of the commission and to renew its contracts every time there was a change in the personnel of the commission, and so as to relieve the Medical Society and the individual members of the commission of liability for the debts of the commission.

The commission, however, in framing its regulations stated its relation to the Medical Society in the following manner :

" Personnel of the Commission.—The Milk Commission of the Medical Society of the District of Columbia shall consist of five members of the Medical Society of the District of Columbia, who shall be nominated by said Society whenever vacancies shall occur, and they shall hold office until their successors are chosen, and shall serve without compensation except as hereinafter provided."

Having proceeded thus far the Milk Commission reported to the Medical Society at the stated meeting held on July 7, 1903, setting forth among other things that the committee had organized and had taken out articles of incorporation, and the reasons for having done so. This report was duly accepted by the Society. Whatever, therefore, may have been in the first instance the wish and intention of the Society with reference to the incorporation of the Milk Commission, since July 7, 1903, that Commission must be regarded as having been incorporated with the knowledge and approval of the Society.

So far as relates to the payment of a bill of \$37.00 for reprints of the regulations of the Commission, the Executive Committee finds that such reprints were necessary in order to bring the work of the Commission to the attention of milk dealers and other interested parties, and that the necessity for such reprints was in no way affected by the fact that the Milk Commission was an incorporated body. The debt seems to have been contracted in good faith in the fulfilment of the purposes for which the Commission was created. The Executive Committee recommends, therefore, that the bill rendered be paid by the Society.

By order of committee :

SAMUEL S. ADAMS, *Chairman*.

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## PROCEEDINGS OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

**Wednesday, November 11, 1903.**—The President, Dr. Kober, in the Chair. 125 members present.

The resignation of Dr. E. L. Tompkins was accepted.

Dr. G. L. Magruder resigned from the Executive Committee.

Dr. J. H. Metzgerott read a paper on "Radium and Its Uses," and exhibited a patient who was undergoing treatment with radium and demonstrated the manner in which the remedy was used.

Dr. Truman Abbe presented "Notes on the Physiologic and Therapeutic Effects of Radium," and exhibited specimens of radium and photographs taken by its light.

A general discussion of the papers followed, Drs. Daniel J.

Kelly, E. L. Morgan, Chappell, Borden and others taking part. See page 364.

**Wednesday, November 18.**—The President, Dr. Kober, in the Chair. 65 members present. Dr. Wm. C. Woodward, for the Executive Committee, made a report with reference to the status of the Milk Commission. The report was accepted with the understanding that the bill of \$37.00 be paid by the Society, and that the Commission refund the money thus advanced as soon as in a position to do so. See page 492.

Dr. Woodward, for the Executive Committee, made the following report :

NOVEMBER 18, 1903.

TO THE MEDICAL SOCIETY :

In the matter of the examination of the vision and hearing of school children, as set forth in the letter of Dr. Frank Allport, of July 1, 1903, the Executive Committee respectfully reports that it is advised by the Health Officer that with the development of the school inspection service such attention will be given to the eyes and ears of pupils as the circumstances of the case warrant and the facilities at the disposal of the Health Department permit. The Committee recommends that action on Dr. Allport's letter be indefinitely postponed.

By order of Committee :

(Signed) SAMUEL S. ADAMS, *Chairman*.

Dr. Woodward also reported that the Executive Committee had reorganized, the step having been made necessary by the resignation of Dr. Magruder. Dr. S. S. Adams had been elected chairman of the Committee.

The Chair announced the death in this city of Dr. John F. Price, November 17, and appointed the following committee to take suitable action : Drs. Holden, G. R. L. Cole and Fenwick.

Dr. Bermann read a paper on "Pilocarpine in the Treatment of Middle Ear Catarrh and Deafness." Discussed by Drs. Butler, Wells, Wilkinson and Dye.

Dr. D. S. Lamb read a paper entitled "Some Postmortem Reminiscences." See page 383.

The Editing Committee was instructed to publish a sufficient number of reprints of the paper to enable Dr. Lamb to distribute copies among his friends outside the Society.

**Wednesday, November 25.**—The President, Dr. Kober, in the Chair. 68 members present.

The Chair announced that he had appointed Dr. J. Dudley Morgan a member of the Executive Committee, vice Dr. G. L. Magruder, resigned.

Dr. W. C. Borden, U. S. Army, presented a patient showing



the result of informal operation on the elbow joint for gunshot injury. Discussed by Drs. D. S. Lamb and J. Ford Thompson. See page 382.

Dr. J. Ford Thompson presented a patient on whom he had operated for osteomyelitis. Discussed by Drs. Shands, Carr, Borden, Keech and Vale. See page 377.

Dr. W. P. Carr read the paper of the evening; subject, "Appendicitis." See page 399.

**Wednesday, December 2.**—The President, Dr. Kober, in the Chair. 58 members present.

The Treasurer reported for November: Received from assessments, \$128; fees, \$25; total, \$153. Disbursed, printing 4,000 reprints for Milk Commission, \$37.

Dr. R. T. Holden, for the committee appointed to take action on the death of Dr. John F. Price, read a report and resolutions, which were adopted. See page 488.

Dr. Balloch presented a case and specimen: Fracture and Dislocation of the Spine—Laminectomy. See page 426.

Dr. Hasbrouck read the essay for the month; subject, "The Absence of Prolonged Nausea After Anesthesia by the Nitrous-Oxide-Ether Method." Discussed by Drs. C. A. White, Abbe, R. S. Lamb, Vaughan, J. Taber Johnson, S. S. Adams, J. Ford Thompson, E. L. Morgan, Carr and Acker. See page 446.

Dr. Carr said that he had evidently created a mistaken impression in his remarks in the discussion of Dr. Thompson's case at the last meeting. He had not intended to speak against operation in cases of acute osteomyelitis. What he intended to say was that one should not do a radical operation during the acute stage; the periosteum should be split in appropriate cases, and a wet dressing applied, but no radical operation should be done at this time, except under unusual circumstances.

**Wednesday, December 9.**—The President, Dr. Kober in the Chair. 75 members present.

The Treasurer was authorized to reimburse the Corresponding Secretary in the sum of \$259.65 for official expenses incurred during the year 1903.

The following cases and specimens were presented:

By Dr. I. S. Stone: Cholecystectomy. See page 486.

By Dr. A. R. Shands: 1, Appendicitis, with appendix in sac of Femoral Hernia. Discussed by Dr. I. S. Stone. 2, An unusual case of Gunshot Wound. See pages 484 and 483.

By Dr. S. S. Adams: Foetus at seventh or eighth week.

Dr. T. A. Claytor read a paper on "The Treatment of Chronic Bronchitis." See page 461.

Dr. W. A. Wells read a paper on "Colds in the Head; Their Prevention and Treatment." See page 467.

The papers were discussed together by Drs. S. S. Adams, Bermann, Hunt, Wood, Belt, Nichols, Reyburn and Kober. See page —.

The Chair appointed as a Committee on Smoker Drs. Hickling, Hunt and Reisinger.

**Wednesday, December 16.**—The President, Dr. Kober in the Chair. 60 members present.

The Corresponding Secretary stated that he had been notified by the President of the Washington Academy of Sciences that it was necessary for this Society to nominate a Vice-President to represent it in the Academy. He nominated Dr. S. S. Adams for the office. Seconded.

Dr. Adams said that he hoped Dr. Smith would withdraw the motion. The President of the Society should serve as Vice-President of the Academy. His own reappointment this year was because Dr. Kober was a member of the Board of Directors of the Academy.

Dr. Reyburn thought likewise, and moved as an amendment to Dr. Smith's motion that the name of Dr. Kober be substituted for that of Dr. Adams. Seconded.

Dr. Kober said that he was already a member of the Board of Directors of the Academy, and, while he appreciated the compliment implied by the nomination, he thought that it would be well to nominate Dr. Adams, as the Society would then have two representatives in the Academy.

Dr. Adams said that his term did not expire until January, 1904, so that there would be ample time to elect the next President as his successor.

After further discussion by Drs. J. Dudley Morgan and Kober, Dr. Smith's motion was laid on the table on motion of Dr. Morgan. Dr. Reyburn withdrew his amendment.

The Corresponding Secretary stated that Dr. J. Lee Adams, who had been elected to membership last October, had not as yet signed the constitution, although his attention had been called to the matter. Dr. Smith therefore moved that he be authorized to notify Dr. Adams that his election had been forfeited because of failure to comply with the By-Laws. Carried.

Dr. Hickling, for the Committee on Smoker, reported that arrangements had been made for a smoker at Rauscher's, on the evening of January 14.

The Secretary read the report of the Committee on the death of Dr. Moses Brückheimer. The report was accepted. See page 488.

Dr. Motter made an informal statement as to the present status of the proposed Pharmacy Law. When the Board of Pharmacy was reorganized, it was requested to prepare a new pharmacy law for this District. Accordingly, the Board invited the participation

of delegates from the Medical Society, the Medical Association, the Homoeopathic Medical Society, the National College of Pharmacy, the Retail Drug Clerks' Association, the Medico-Legal Society and the Registered Drug Clerks' Association. These delegates held a number of conferences with the Board of Pharmacy, and as a result, a bill which had the approval of all had been finally laid before the District Commissioners. Before the bill was put in final shape, however, a part of it, representing a portion of the work of the conference, was appropriated and sent to the Commissioners of the District as a separate poison law. Enough copies of the proposed bill had been ordered to furnish one to each member of the above-named bodies, and an opportunity for criticism would be given when the bill should have been referred back from the Commissioners. The proposed law was based on the model pharmacy law, recommended by the National Pharmaceutical Association, and which was the result of the labors of the leading men in the profession. In concluding, Dr. Motter presented a copy of the model law to the Society.

The Chair announced the essayists for the coming year as follows: January, Dr. Vincent; February, Dr. Grasty; March, Dr. Barton; April, Dr. Vale; May, Dr. Dowling; June, Dr. Jackson; October, Dr. Holden; November, Dr. J. A. O'Donoghue; December, Dr. J. D. Thomas.

Dr. Kober then delivered his presidential address. See page 429.

At the close of the address Dr. Reyburn said that Dr. Kober had at one time been a member of his quiz class, and he was particularly gratified at Dr. Kober's eminent success in the profession and the community. He moved that a vote of thanks be extended to him for his most entertaining and instructive address. The motion was unanimously carried. Dr. Kober expressed his appreciation of this action of the Society.

The recommendations contained in the presidential address were referred to the Executive Committee for consideration.

The Society then adjourned *sine die* for the second session of 1903.

## Medical Miscellany.

**Episcopal Eye, Ear and Throat Hospital.**—REPORT OF THE ATTENDING MEDICAL STAFF TO THE HONORABLE BOARD OF GOVERNORS.—The Attending Medical Staff respectfully reports that during the year 1903 there were 14,643 visits made to the hospital by 3,100 patients. Of these, 394 were admitted for operations or hospital care. They spent an aggregate of 4,829 days in the hospital. There were 738 operations performed, 420 being on the eye, 97 on the ear and 221 on the throat and nose. 98 cataracts were operated on; 1 lens was removed for extreme nearsightedness; 44 cases of crossed eyes were straightened and artificial pupils were made in 25 cases; 14 lost eyes were removed and in 6 of these a glass or gold ball was implanted in the orbit to make a better support for an artificial eye. 14 operations were performed on the mastoid bone. In one of these the disease had extended to the brain, and an abscess had formed. This was successfully operated on, and the patient made a complete recovery. 119 enlarged tonsils were removed, and 106 cases of adenoids were operated on.

Since the opening of the hospital, less than seven years ago, there have been 72,584 visits to the hospital by 14,176 patients, and 2,810 operations have been performed.

The Staff is highly gratified at the prospect of moving into the new hospital in a few months.

DR. E. OLIVER BELT.

**Georgetown University Hospital.**—The new addition to the Georgetown University Hospital, located on the corner of 35th and N streets, northwest, was dedicated January 7 at 4.30 P. M. A reception preceded the ceremonies and a tea followed under the auspices of the Ladies' Aid Society.

An address of welcome was delivered by Rev. Jerome Daugherty, S. J., rector of the University, and the dedicatory address, by Dr. Joseph Taber Johnson, chairman of the Committee on Hospital Administration, gave a brief history of the progress and activities of the institution.

The University Quartet and Mr. Robert J. Green, a medical student, rendered several selections. The exercises were held in the new operating amphitheater, which is modern in its construction and equipment, and located in the administration building. Adjoining the operating room are the surgeon's toilet rooms, anesthetizing, recovery and sterilizing rooms.

The new addition is 95 by 30 feet in dimensions, four stories and a basement high, and increases the capacity of the hospital to



100 beds. The basement is arranged for the dispensary service, and, in addition to a spacious waiting room and drug room, contains 10 rooms for clinical purposes. On the first floor is the reception room, the main office, dining room for the house staff, nurses' room, diet kitchen and a large public ward for females.

The second floor contains 17 private rooms for female patients and the third floor a similar number of rooms for male patients. The fourth floor contains two large public wards for male patients.

Each floor is provided with baths, diet kitchen and nurses' rooms, and all labor-saving contrivances, such as call bells, telephones, etc. The situation of the hospital commands one of the most magnificent views of the city, the Potomac river and surrounding country. A Training School for Nurses has just been established in connection with the hospital. The community of Sisters and the nurses in training occupy separate buildings.

DR. GEO. M. KOBER.

**Health Office, D. C.**—Between September 1 and December 31, 1903, 431 cases of typhoid fever were reported to the Health Department. The number of cases under treatment at the beginning of the period mentioned was 213. The total number of cases under observation was, therefore, 644. Of these, 57 have died, 512 recovered, and 75 remain under treatment. Of the 431 cases reported, 315 were white and 116 colored; 138 cases were reported during September, 148 in October, 91 in November, and 54 in December. The disease has been much less prevalent than during the corresponding period of last year, as is indicated by the fact that during that period 826 cases were reported as against 431 in 1903, and as indicated further by the fact that, at the close of the year 1902, 235 cases were under treatment as against 75 at the close of 1903.

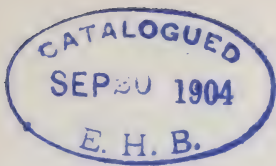
Nineteen cases of typhoid fever reported between October 17 and December 5, 1903, received their milk supply from the same dairyman. As typhoid fever existed on the farm from which a portion of his milk supply came, and as the undue prevalence of typhoid fever among his customers ceased shortly after the milk supply from that source was discontinued, these cases may probably be classed as due to milk infection.

August 31 8 cases of diphtheria were under treatment, and between that time and December 31 91 new cases were reported. Of the 99 patients, 9 died, 56 have recovered and 34 are under treatment. The number of cases reported during the corresponding period of 1902 was 117.

August 31, 1903, 3 cases of scarlet fever were under treatment. Between that date and the close of the year 94 cases were reported. Of these patients, 1 died, 60 recovered and 36 were under treatment December 31. The number of cases reported during the corresponding period of 1902 was 82.

Eleven cases of smallpox were reported during the last four months of the year just ended. Four are known to have contracted the disease outside the District of Columbia, and three are known to have contracted it directly from one of these patients. The origin of 4 cases could not be determined. Of the patients reported, 1 had never been vaccinated, vaccination had been attempted unsuccessfully on 5, 1 had been vaccinated six years ago and 1 fifteen years ago, successfully, it is said. Three, whose ages were respectively 24, 27 and 33, had not been vaccinated since childhood. Seven patients have recovered, and four are under treatment. The number of cases reported during the corresponding period of 1902 was 17.

DR. W. C. WOODWARD.



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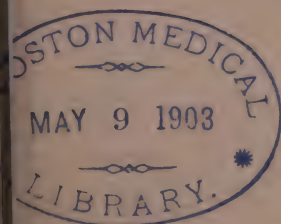


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INCLUDING A MEDICAL MISCELLANY

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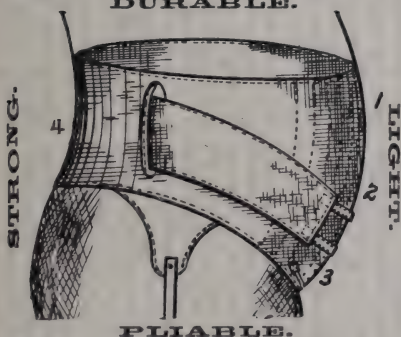
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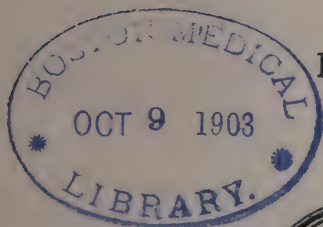
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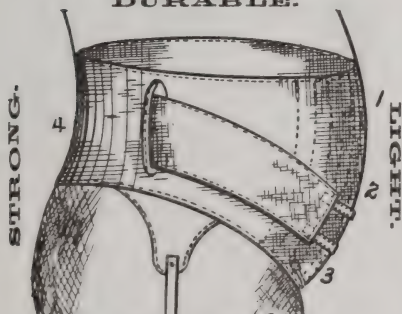
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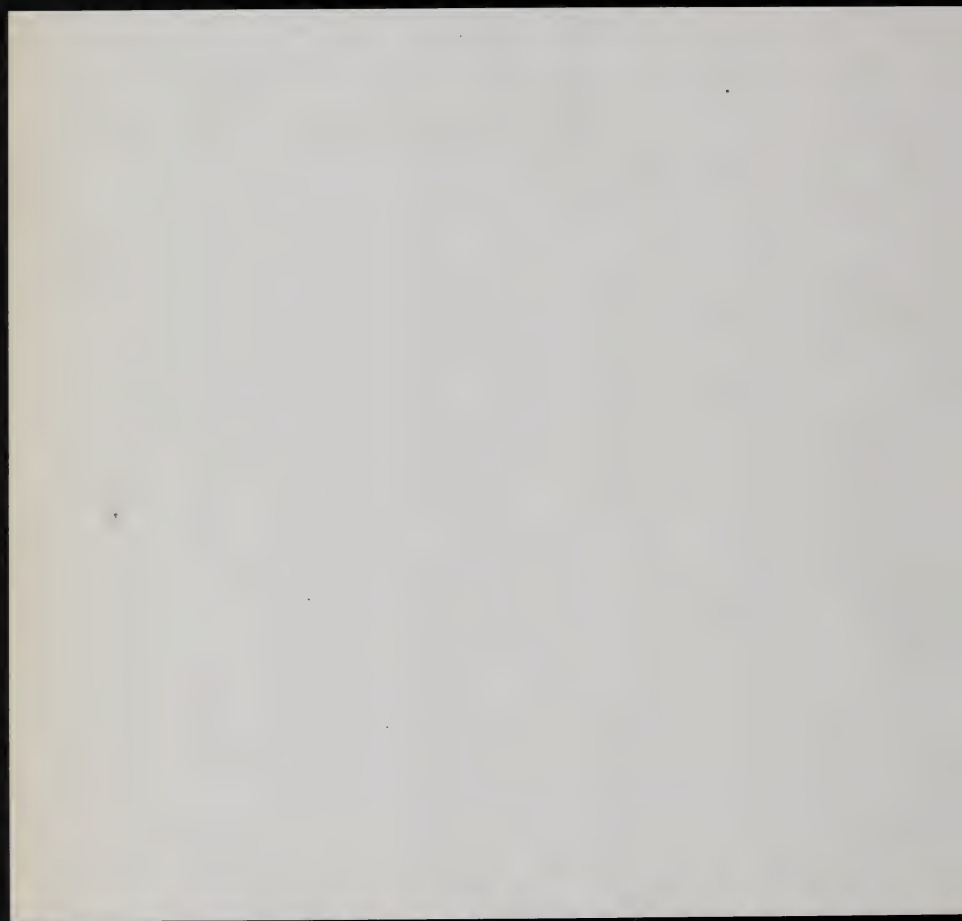
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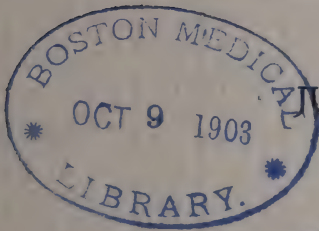
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(BIMONTHLY)

Journal of the Medical Society of the  
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SEPTEMBER, 1903



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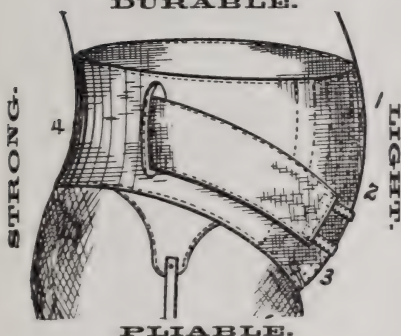
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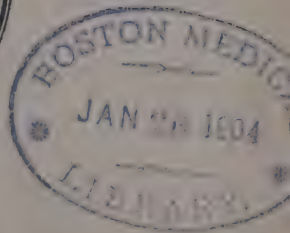
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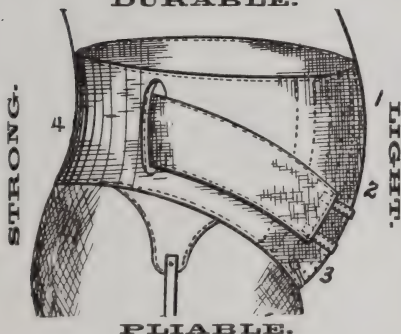
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JANUARY, 1904



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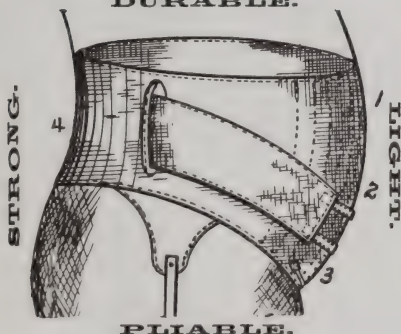
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